DRAGON USER

October 1987

The independent Dragon magazine

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Gordon Lees own solution to the July competition

STOP PRESS+STOP PRESS+STOP PRESS

John Penn Software are organising a 6809 Show in London at the Great Hall the Connaught Rooms Aldwych on Saturday December 5th More news next month

Brian Cadge is on holiday

Editorial

IT S apologies month again this month Everything will be resolved of course by the time you read this but I would just like you to know that my first thought when I was told that *Dragon User* wouldn t be mailed till the 7th September was They ll lynch me in Rochdale! "

What I can t tell you just yet is whether they *did* lynch me in Rochdale I can t even plead with em not to It s too early for t one and too late for t other All I can say is that well we were a teeny bit late to the printers Not two whole weeks late but well late is late isn't it?

Trouble is, if you leave the office for a week your hardworking friends and colleagues can do one of two things a) something or b) nothing B) normally causes fewer problems Normally Fortunately the ghost of the much missed Barbora, who hid a few spare days in the timetable, and the long suffering Artext send us your discs and we ll show you what you can do with em made sure that we were stuck down and parcelled up rather less late than we would otherwise have been

By the way, it s a little known fact that designers of computer mags gradually go insane There are only so many things you can do, visually that is, with little black boxes Editors don t of course (burble —)

Telephone number
(All departments)
437-4343

Editor
HELEN ARMSTRONG

Production Editors
DAVID PRIVETT/LINDA SLOMAN

Editorial Secretary
CAROL FIRTH

Advertisement Manager
ATHENA PEERMAN

Administration
ANNE MARIE ALLEN

Marketing Manager
HELEN PERRY

Managing Editor
PETER WORLOCK

Publishing Director
JENNY IRELAND

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How to submit articles

The quality of the [illegible] we can publish in *Dragon User* each month will [illegible] depend on the quality of the [illegible] with your Dragon. The Dragon computer was launched on to the market with a powerful version of Basic but with very poor [illegible]

Articles which are submitted to *Dragon User* for publication should not be more than [illegible] words long. All submissions should be typed. Please leave wide margins and a double space between each line Programs should, whenever possible be computer printed on plain white paper and be accompanied by a tape of the program

We cannot guarantee to return every submitted article or program so please keep a copy If you want to have your program returned you must include a stamped addressed envelope

Letters

This is the chance to air your views — send your tips, compliments and complaints to Letters Page, *Dragon User*, 12-13 Little Newport Street, London WC2H 7PP

Mystery draw

WHILE reading DU August 1986 I came across an item called *Graphics* by J H Plester in Dragon Answers. So here is something for Mr Plester to add to it

```
10 PMODE 2 1 SCREEN 1 0
20 POKE &HFF22 (PEEK
(&HFF22)AND 6)
15 DATA 121 12 12 12 12 12
12 12 12 13 33
30 GOTO 10
or
20 POKE &HFF22,(PEEK
(&HFF23)AND 6)
or
20 POKE &HFF22 (PEEK
(&HFF20)AND 7)
or
20 POKE &HFF22 (PEEK
(&HFF10)AND 8)
or
20 POKE &HFF22,(PEEK
(&HFF18)AND 9)
or
20 POKE &HFF22,(PEEK
(&HFF15)AND 2)
```

If there s any complaints about the above please contact or phone me. And could J H Plester and Simon of Crawley Hill Farm who wanted help with *Syzygy* get in touch. Sorry Simon

Paul Iaskiewicz
40 Sidlay Avenue
Parr St Helens
Merseyside
WA9 2BQ
(St Helens) 611827 (between 4 and 4 30pm)

Every month we will be shelling out a game or two, courtesy of Microdeal, to the reader/s who send the most interesting or entertaining letters. So send us your hints and your opinions, send us your hi-scores and suggestions. Send us your best Dragon stories. What did you think we are, mind readers?!

There's gold in them thar bills!

As new software is now almost extinct I would like to pass on my experience of obtaining software direct from Canada and America. Payment can easily be arranged on any of the major credit cards

I ordered *Ganteint* and *Paper Route* from Canada by phone at about 9pm in the UK. Due to the time difference it was early afternoon in Canada. The games took about 1 month to arrive. They both ran without conversion on a Dragon 64 except if you use the keyboard mode instead of using the joystick as the keyboard scan is different although this can be overcome by using different keys

The main drawback is that the games cost about £30 each including shipping. Custom duties and charges add another £5 when they enter this country

I hope the above information may prove useful to anyone thinking of ordering direct from an American or Canadian source

R K Osborne
18A Northdown Avenue
Cliftonville
Kent
CT9 2NW

AND who has recently inherited their aunty s estates well that should stop folk complaining about the cost of new software here for a bit

Anyone who is this dedicated deserves one free tape, I reckon but we would be interested to hear from anyone who has a (legitimate) method of getting compatible software from the USA without having to pay £35 a shot!

Write-a-DOS?

COMMERCIAL support for the Dragon is not very good to put it mildly although some interesting new names and items have appeared of late. One thing I have noticed though is if someone says there is a special need for some particular program or item especially in your pages it seems to spark somewhere an I can produce that! from somewhere

So what s the point of this? Well I have spotted a market gap and I want someone to fill it. The books-on anything computer phase ended as the DRAGONDOS appeared on the scene and the manual supporting it is abysmal. I would like a good book on this peripheral starting with simple use and programming fully covering file handling in an easy to follow manner with plenty of short example programs and going on to memory maps etc. I am sure there is more than one person out there with the knowledge and skill to write such a book and a market for it once written. Perhaps Sunshine will take you up and do the actual publishing??? If not I see no reason why it needn t be in printed photocopied or duplicated form. You might even make a bit of money!

Philip Bead
27 Findon Road
Elson
Gosport
Hants PO12 4EP

WELL, money is something there isn't a lot of about as we all know, but you never know do you? Just out of idle curiosity, is there anyone out there who has the onions to write a book like this?

Out of print

HAVING read with interest your review *Take Ten Printers* in the July edition of *Dragon User* I was very impressed with the report on the Tandy DMP105 by Ian Martin. He suggested that the competitive price is £120 but has since been reduced to £99 95. With this information in mind I paid visit to my local Tandy shop. I asked the salesman if I might see the DMP105 at work to which he replied Sorry! That model was discontinued at Christmas. The printer has been replaced by the DMP106 but the price has increased considerably to £169 95

The review now seemed rather pointless and as you can imagine I am very disappointed

Now after the complaint please can you give any information as to where I may obtain *Buzzard Bait* by Tom Mix? The only copy I have seen locally is at Tandy s and that was for the CoCo and would not even load into the Dragon. As this is one of the games recently under review by *Dragon User* I wondered if you can supply a source?

Dennis Wright
37 Moor Drive
Alvaston
Derby DE2 0DQ

NOW deng my eyes but I ll be darned if I can find a review of *Buzzard Bait* around the old place just now. There's one in my brown paper bag perhaps we ll run it. But the word is that Microdeal, who used to sell it no longer do so so unless you can beg borrow or steal one, it s no longer available

Help with old WP?

I HAVE recently been experimenting with *Coding the Words* Peter Whitteker s Word Processor in the September 1985 issue of *Dragon User*. I think it is an excellent program and if more software like this had been available commercially earlier on the Dragon would still be selling in its thousands today

However I have two problems and would be grateful if Peter or one of your other readers could assist. Firstly I am not a very good touch typist and would like to increase the auto repeat delay so that I do not repeeeeeealed leeeeel ters. is there some local on I can POKE with a longer delay? The second problem is more difficult when I save to disc after entering the 8 character filename followed by (ENTER) the disc motor starts the busy light comes on the head moves and it stays like this for 10 minutes or more until I press the (RESET) button on checking the directory no file has been written If I try to load a file any file the program crashes with an FM error I presume that Peter uses a different disc controller and that he is making calls to routines which reside in different locations I should be most grateful for any help in converting the program even if it is only a list of the disc routine calls used by Peter

Mrs Bernice Hennessy
The Firs
8 Towcester Rd
Blisworth Northampton
NN7 3BL

UNFORTUNATELY we have lost touch with Peter after efforts to locate him Perhaps another reader can help

Double spaced Stylo

I am a Spanish member of the OS-9 User Group and subscriptor of your good magazine I write you about the article of David Rothery and the correction of the double space printing with the Stylograph program

Well making the change that he proposes the printing is correct with both Stylo and MM But if you try to use the MM with the screen it doesn t work properly and in addition both programs don t respond to the Xmode set ups

The problem of the double space printing in both programs comes from the use of a system calling The characters are sent to the printer one by one with a I$Write calling This calling doesn t allow line editing and to end a line it is necessary to send a CR + LF sequence This causes the double space printing ignoring the Xmode set ups

To avoid this dreaded problem I have changed the I$Write calling by a I$WritLn which allows line editing and I have nullified the LF sequence with NOP instructions With this change in both programs the printing is correct on the printer and the screen and always follows the Xmode set up conditions

This is the process to make the changes with the systems disc (with the Debugger) in /D0 and the Stylo in /D1

```
DEBUG
$ LOAD /d1/cmds/stylo
L stylo
  +012E
=8C
L stylo
  +3F4F
=12
=12
=12
=12
Q
SAVE/d1/cmds/stylo mod stylo
DEL /d1/cmds/stylo
VERIFY U (/d1/cmds/stylo
mod )/d1/cmds/stylo
DEL /d1/cmds/stylo mod
ATTR /d1/cmds/stylo e pe
```

The process for the Mail Merge is the same with the addresses +00F3 and +191D

I hope that this change will be a definitive solution for this problem Apologies for my English Thank you for you attention

Pedro M Pescual Unguen
Santaines Kalea 6-B
20600 Eibar (Gipuzkoa)
Euskadi Spain

Quick Tally mod

I WAS very interested to read your article on printer and I myself own the Mannesman Tally 80 + and have found the variety of print modes and character sets to be very useful in writing technical reports for my degree course at the local polytechnic

It can be found if the top cover is removed that on the left under the input card are two sockets marked Ram 1 & Ram 2 the card is held in place by two screws and should be removed by lifting it directly upwards as it is plugged into the board below now if two 8116 memory chips are fitted in these sockets then the input buffer will be increased to 4K (as opposed to only 112 bytes which is the standard) The cost of the chips is only about £4 50 and this included the postage and putting the chips into the sockets can be done by all but the very clumsiest of oafs

I hope this information will be of interest to your readers

C Hitchinson
2 Newington Rd
Beechwood
Middlesbrough
Cleveland TS4 3ED

PS I bought the chips from Grandata Ltd for £1 60p + VAT + 50p postage The address can be found in *Practical Electronics*

Better video?

SINCE the Dragon came out people are trying to upgrade it to give it a better video performance The Tandy Coco has managed it by having a raster memory system by Motorola installed the Dragon got stuck by having an out of date video system

Compusense with its upgrade board had better used the NEC7220 instead of an out of date MC6845 then when all is in RAM one could modify the Basic to use the 7220 to full potential

a) 128 columns x 72 lines more than A4 page (using an A4 or double A4 monitor by ETAP Belgium)
b) High resolution of 768 x 576 pixels better than Atari ST or Amiga or IBM PS/2
c) Using analog video unlimited colours CAD/CAM possibilities
d) 128K Video RAM used by the 7220 only not interfering with the Dragon s own 64K etc or having a complete new RAM board of 1Mb

For quite a while a British firm called Micro Concepts has had another solution Microbox II

One can order it as a kit or as a complete package take your pick they can be reached at 2 St Stephen Road Cheltenham Gloucestershire GL5 1AA phone (0242) 510525

Maarten AMJ Van Wemelen
3 Lynmetestreet
Oedelem 8330
Belgium

Cluster correction

THANK you for publishing the article *Into the Directory* in the May issue and for the program ReadDD

However I feel I should point out to Paul Dalgleish a misunderstanding he has He comments that the device descriptors are set up for 8 sector clusters and so Dragon discs will not read directly In fact the OS 9 device descriptors do not contain any reference to the cluster size This is chosen by the format program and written onto the identification sector of the disc The byte Mr Dalgleish specifies to change should have no effect at all on the operation of the program The byte referred to is called the Segment Allocation Size and is the minimum number of sectors allocated to a file See page 6-4 (4th paragraph) of the OS-9 Systems Programmers Manual If the file is shorter that 8 sectors then when the file is closed these extra sectors are de allocated from the file If you have two or more files open for writing simultaneously and you have altered the device descriptor as Mr Dalgleish suggest you could get a Segment List Full error due to excessive fragmentation of the files This byte is therefore best left as it is The program ReadDD works perfectly well anyway

To check the cluster size try using the FREE command This displays the cluster size amongst its output

P D Smith
University Hall
Birchwood Road
Penylan
Cardiff
CF2 5YB

Thanks and a favour...

FIRSTLY may I thank yourselves for your backing and continual support for Dragon owners It is organisations such as yours that help keep our family of together

Next I would like to thank the Hardware and Software Businesses for supplying these owners with their necessary fodder if you will excuse the term

Finally I must congratulate all the owners of Dragon and Tandy (never forget the Tandy owners) Machines for not discarding their computers in pursuit of poxy (forgive me if poxy is a bit strong) machines such as Sinclair — say no more Atari etc It is the owners themselves whom deserve congratulating as they keep a computer alive and I am sure they will continue to support their suppliers

Could I please ask you to print my name and address along with this letter so I can get in touch with other Dragon owners and swap games tips and for the female contingent — telephone numbers?

Steve Clements
397 The Heathway
Shard End
Birmingham
B34 6QN

WHY s that, ey? Fink only tha birds have telephones do yer? What about us chaps, then? Ay? Ay?

News desk

New disc set to chart

THE lady with a 3 inch disc clinging to her ear is part of a new advertising campaign by TDK already well known for their video and audio cassette tapes

TDK haven t made it clear yet whether the new range will include 3.25in or 5 in discs but TDK magnetic tape is already a byword for good quality so they could become a major force in the disc market in future

But they are not likely to start any trends in the earring business

Dragon User back issues

FOLLOWING the launch of Pulser Software s database program *Magbase* with an optional *Dragon User* index this seems like a good time to print a list of DU back issue still available

We have small quantities (under 20 copies) of the following

August 1983 December 1983, February 1984 March 1984 May 1984 June 1984 August 1984 September 1984 October 1984 November 1984 January 1985 February 1985 March 1985 June 1985 November 1985 January 1986, February 1986 March 1986, May 1986

We have substantial quantities (over 50 copies) of September 1985 December 1985 April 1986 August 1986, September 1986 October 1986, November 1986 December 1986 (which contains adverts from virtually every supplier still in the Dragon market including one or two recent drop-outs and as such is a useful work of reference) and all 1987 issues

We have a very small number of September 1983 November 1983, January 1984 April 1984 July 1984 and July 1986 Don t order these — drop the Editor a line if you want copies and we will check with the warehouse and let you know after which we will deal with any orders on a first come first serve basis This will help us to avoid losing track of orders for issues which may or may not be in stock

Backnumbers of *Dragon User* cost £1 25 regardless of quantity or rarity! Please send any orders to the usual address making payments out to Scot Press Ltd

Magbase price list

HERE is a full list of prices for the different versions of Pulser Software s *Magbase*

Tape version £1.99 disc version £2 99 tape version with *Dragon User* files £2.99 disc version with *Dragon User* files £3 99 *Dragon User* hard copy only £1 99 tape version + DU files + Du hard copy £3 99 disc version + DU files + hard copy £4 99 Post and packing is 50p except for the DU hard copy only where it is 25p Overseas postage is £1 25

Cheques should be crossed and made payable to Pulser Software at 36 Foxhill High Crompton Shaw Oldham Lancs OL2 7NQ

The disc versions are available for **DragonDos, CumanaDos 2.0 and Delta Dos** so specify which version you want

We understand that there are also index files available for *Dragon Update*

Solver Steps Out

SIMON The Solver Hargrave would like to announce the release of his new range of adventure games

As I have the reputation of The Solver you will not expect them to be easy! writes Simon The titles are as follows

Starcrash — a space adventure in which you are trapped on a hostile planet with a sinister secret

The King s Quest — an indirect continuation of *Starcrash* You are trapped in a castle on 12th century Earth at the mercy of a mad king

The Quest for the Meaning of Life — You have control over four characters and must use them to find the answer to the meaning of life

All the games will run on a Dragon 32 or 64 Simon is currently working on Tandy conversions The games all have mobile creatures and play in real time except *Starcrash* which uses mock real time

There are various little additions to the keyboard parser including a orange/green option from the Break key and a printer history of your moves by using SHIFT and the UP arrow But again not on *Starcrash*

The adventures cost £5 each (including post and packing Allow 28 days for delivery) from Simon Hargrave, Crawley Hill Farm Uley Dursley Glos GL11 5BH

Simon also sells solution sheets for many adventures They cost 20p each Send an SAE to Simon for more information

Missing person

WE RE still hoping Mr John Carmel will contact us about another reader who was trying to get a letter to him

Editor adjusts eyeshade

SINCE I have a couple of spare column inches this looks like a good time for me your Editor to offer both an apology and an appeal to DU s loyal and patient subscribers The subject of enquiries from beleaguered users raised its head today in the form of a mild grumble from one reader who had sent inqueries with the appropriate coupon but neither were printed or acknowledged and another from a hopeful who had enclosed an Adventure Trail coupon with a stamped self addressed envlope asking for a reply

Well nothing makes me happier than a reader who contacts this office with a heartfull of woe, and goes away happy as the lucky ones will testify If we get a letter — or a call but letters are more likely to reach the right person — and we can supply the answer then we jolly well do even if we have to sit on it for a longtime And if none of the contributors can supply an answer directly enquiries are re-routed to *Communications Adventure Helpline* or the letters page

BUT

The Dragon is a little magazine with a little staff (most of those good people with their names on the flannel panel run the company rather than the magazine) and for this reason we have never ever at least not since well before my time undertaken to reply personally to letters no matter how many SAEs arrive with them Nor do we run any kind of coupon system for replies Everything which arrives here on a COMMS or ADHELP coupon gets listed in the next available issue of *Dragon User* just like it says on the coupon After that it s in the hands of you gentle readers

Likewise Mr Gerrard is the only one of our contributors who offers a readers service and that only involves the adventure help sheets This is still strictly at his discretion because the Mine Workers and Computer Journalists Act of 1983 states that we are not allowed to keep workers in a deep dark hole and make them slave for a pittance until their fingers drop off. We do it anyway, but we have to keep up appearances.

Gordon Lee isn't allowed to discuss competition results with anyone (which is the universal rule for competition organisers) and although he has been known to courteously apologise for our typos these are normally corrected in subsequent issues.

The appearance of a Secretary on our front page leads a few hopeful souls to picture me feet on desk carelessly dictating missives to a fast-fingered assistant. Wrong. The fast-fingered assistant is tied up typing out this your regular magazine for the typesetters in between answering the phone and being shouted at by people who want stationery. She is concerned with nothing so humble as typing letters. If I want a letter typed I type it myself. If the W/P isn't tied up on official business. Which is why those of you who do get a reply usually get a comp slip scribbled in what looks like red biro. (It's actually blood flowing from under my careworn fingernails. Journalists always write in their own blood because it's cheap, reliable and doesn't need a requisition.)

So we are sorry we can't offer a slicker readers' service, but it was a choice between getting another assistant or keeping the magazine on. You see, we will go on coping with as many queries as we can. Please don't feel neglected if you don't hear from us personally. And yes, it *is* worth chasing if you have something you are concerned about in case it has gone astray. Write or call in, leave a message. Live dangerously! But don't ask them where I am. Some things it is better for humankind not to know, and they usually don't.

Now if you'll excuse me, I must go and write a couple of letters.

Dragonsoft

New software for review should be sent to *Dragon User*
12-13 Little Newport Street, London WC2H 7PP

A PC when you need one

Program *Dragon/PC Convert*
Supplier Compusense
Price £24.95

HOME computers have been around long enough now for everyone to have seen, played and usually lost interest in most forms of computer game. Having exhausted the seemingly endless supply of games, most people sit down and begin to wonder to what practical use they can put their beloved micro to. It is at this time that most people realise that for any real application the Dragon has many shortcomings such as poor communications ability, awful screen display, slow working speed, lack of software etc. and with the increasing number of desk top computers finding their way into offices more and more people are becoming aware of just what is possible with a decent micro. It is due to these and other reasons that many home computer users are either using their Dragons to prop doors open and forgetting computers completely or are going out and buying something with a little more Whoomph.

The popular choices at the moment seem to be either the Atari STs or the ubiquitous IBM PC or one of its many clones. But there are a small number of people who still keep the old Dragon handy simply because they have so much software or data for it. Having had to change computers several times in the past myself, I know that it can be very frustrating when you face a programming problem to which you already have the solution on an old machine. Well now, thanks to Compusense's *PC Convert* packages it is a simple matter for you to copy them over to your new pride and joy(?)

There are currently two *Convert* packages available: one will transfer DragonDOS files (either dBASIc or TeXT) to the IBM PC or one of its many compatibles. The packages are so easy to use that there is little to say about them!

Using *Convert* program couldn't be easier: you simply boot the PC and run it. A menu is displayed giving options that allow you to select the target path name, target disc drive number, show the source disc directory etc.; make your choices, put the DragonDOS/FlexDOS disc in one PC drive, a formatted PC disc in the other drive and make your selection from the disc directory displayed. The drives whirr, the cursor blinks and voila, your precious file is now available as a PC format text file.

For someone moving up (?) to a PC these programs are simply essential. Those of you who have decided to stay with your Dragon will not be interested in this review anyway. (And I don't care!) If you have bought a PC then buy *PC Convert*!

Roy Coates

Put your left arm up...

Program *Crazy Foota*
Supplier Computape
Price £2.99
Notes Available on cassette and DragonDOS for Dragon 32 and 64. Requires two players.

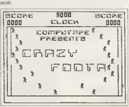
IT was very appropriate that this game should arrive on the day that the English football season kicks off. If there's anyone out there who hasn't twigged yet then I'll tell you that *Crazy Foota* is a football game. OK?

It is also an unusual football game, in that it's not like *Champions* or *Football Manager* where you decide the club's moves and if all goes well and the odds are on your side you'll have a good chance of winning. In *Crazy Foota* you control your team and battle away with the other team, controlling all the players and scoring all the goals.

The object of the game is to score as many goals as you can against your opponent within a set time. To select a player you move an arrow on your side of the screen using a joystick, then left/right to move the player. This process takes a while to master. The fire button kicks the ball in the direction which the joystick is facing. This allows you to pass the ball or shoot.

The game is played in PMODE4 and because there is no colour it is hard to distinguish between your own players and the opposition. However if you look closely one team has its right hands up in the air and the other team has its left hands up, which makes all the players look as if they are about to do a Highland Fling.

There are eleven players in each team, which means 22



figures packed into one little screen This does get a mite confusing

The graphics are simple but nice and the players look surprisingly like Jack (from *Beanstalker*) The title music is also fairly simple The cheers from the crowd sound like a constipated cat

There are a number of faults in the game which spoil an otherwise enjoyable program Firstly the goals are larger than the goalie which means that you can score by shooting diagonally over his head or under his legs It sounds fair but it is annoying Secondly you can walk straight into a player and take the ball away from him This is especially annoying when it s the opposition s keeper who is the culprit because he can walk straight into your goal leaving you unable to catch up Finally because you can walk through a player it is possible to walk through the other keeper s goals while he is standing in them and he cannot block your way (or you his) You simply push him further into the goals and there s nothing you can do about it

It s nice to see Compulape release something new by themselves although the presentation is rather amateurish The inlay is made up of a thin piece of yellow paper with a print of a screen shot. How about a bit of colour with some proper pictures! Apart from the said problems I found the game very enjoyable and it is well worth the price of £2 99

Donald Morrison

Program *Kamakarzy*
Supplier R&A Preston
Price £2.99

THIS is a version of the old arcade game where you have to collect all the flags in a maze inhabited by the other cars which are out to kill you (Kamakarzy drivers) your only defence is to release clouds of smoke from your car You have to watch your fuel guage or else your car will meet with a sticky end thankfully there are fuel cans dotted about the screen As in the arcade the screen scrolls as you look for the flags On later levels there are more obstacles and even more mad drivers out to get you! On screen 2 there are giant cabbages which block the routes to the flags and make life that bit harder

Everything in this game is done professionally the car explodes then the remaining parts spins round when you die the title screen has a very good tune which compliments the screen and even the way you enter the name in the hi score table is easy to do When you load the game you should stick with it as it hasn t crashed but is supposed to load that way

Even though this quite and old game it is still worth every penny

Stephen Cogan

Life is full of little ups and downs

Program *Biorhythms*
Supplier Occult Software
Price No information

BIORHYTHMS are one of those things that like horoscopes you either believe in or you don t For those that don t know followers of biorythms maintain that the three main facets of your personality (intellect emotions and physical well being) go through cycles during which time they vary in strength The lengths of these cycles differ in that the cycles are of 33 28 and 23 days duration respectively hence the need for a computer to calculate their current positions.

The program comes on cassette with a series of printer drivers on side A for Epson Seikosha GP100A and Shinwa CP80 The *Biorhythms* program itself is on side two and having loaded starts by giving you a choice of foreground and background colours (black buff and green since it is all in PMODE4) and then asks for the subjects name and date of birth Having entered this initial information you may then enter the target month that you wish the biorythms to be calculated for This is where the fun starts

The program begins by calculating the number of days that have elapsed since the birthdate and the target month LAST YEAR (Allowances are made for leap years) The program then goes on to add the number of days month by month until the target month is reached Eventually (and I mean EVENTUALLY) a graph is drawn for the target month showing the status of each of the three cycles and showing the critical days at which time things are at an all time low You have the option to print the graph or to go on and get the biorythms for the next month but that is IT

If you are a biorythm believer then the information shown will make you very happy I am not a believer and so the output of the program is as exciting to me as an empty beer can (not a bad analogy that eh? since I don t posess Jason s literary wit when God was dishing that out Jason was at the front of the queue and I was in beer tent!) but what annoyed me was the fact that the progam shows all of its calculations one step at a time and after each step you must press a key to continue to the next

This would not normally be too bad but because the steps are shown on the hi res screen using an immeasurably slow text driver I found myself reading the paper and occasionally nudging the space-bar with my elbow

The program is very neat and has obviously had a lot of hard work put into it but it simply takes too long to get to the final screen that shows the information that you bought the program for Before the letters page starts buzzing with insults thrown in my direction I am not criticising *Biorhythms* that is your choice, my comments are only directed at the programming

If *Biorhythms* are your cup of tea then this program will do what you want it to It will just do it slowly that s all

Roy Coates

Gus goes gambling through space

Program *Galactic Gus*
Supplier Quickbeam
Price £4.00

THIS review is of a standard game and unfortunately I did not even have the usual Quickbeam sheet that accompanies their games When I first tried Galactic Gus I absolutely hated it. I was losing all of my eight lives within seconds of starting and felt very dejected

Having persisted with it I am hooked on it and spend quite a lot of time trying to sort our the many problems facing Gus the fighter pilot who is searching for fuel pods to refuel his fighter so that he can rejoin the Spaceship Dragon He is seated on a rocket chair and has to be steered round laser doors creatures and other suprises

This is not a zap-em type game but one has to be very skillful to avoid the creatures on many of the 215 screens as you move through the maze trying to find fuel The type of maze involved is not too unlike *Dark Pit* There are also bananas and small white objects and I have seen a key (but can I yet reach it) which must be taken to the keyhole to reach further screens

Once you have mastered how to avoid the creatures try Invisible Land where you can see the creatures but Gus is invisible For the hackers there is a combination to be entered to get further

The graphics on this game are nothing special at all but for £4 you are presented with a series of challenges which will keep even the most adept busy for many hours Not a classic game but certainly good value for money and containing a variety of problems some of which I have not even come across

First printed in Dragon Update

Mike Stott

Valuable archaeological artefacts discovered by explorers in Delta

Program: *Toolkit & Scribe*
Supplier Premier Microsystems
Price No Longer Available

ALTHOUGH the demise of Premier was some time ago I decided that other Dragon owners (in particular DeltaDOS users) should know about the excellent software that the company produced. I feel they never got the recognition they deserved at the time and this might have been a reason for their collapse. Both of these products must be used in conjunction with DeltaDOS.

TOOLKIT

This comes in the form of an EPROM fitted inside your DOS controller. I can almost hear you say AH! But you can't buy them any more — let alone get one fitted! Well I tried and I tried to find a supplier and almost gave up trying but in the end I found a very helpful person who was kind enough to supply an EPROM for me AND fit it. TOOLKIT gives the user 60 extra Basic commands and functions. I have condensed a description of these below. There are 24 low res screens available to the user also.

AUTOx y — Gives automatic line numbering from x in increments of y
BEEP — Produces one single tone through normal sound channel
BEEP n — Produces n tones
BEEPON — Produces a single tone every time a key is pressed
BEEPOFF — Stops the above
BLOCKx y a b z s — Draw block start x,y length a height b character z screen s
BREAK ON/OFF — Disable and enable the break key
CAPPEND — Append a cassette program from tape
CDIR — zproduces a fully comprehensive tape directory
CLSx s — Fill screen s with character x
DEEK/DOKE — Double byte equivalents to PEEK & POKE
ECHOx y z — Copy lines x to y to line z onwards
ENCA=/ENCB= — Set enclosure characters for SEARCH & REPLACE
ERL — Returns line where an error was encountered
ERR — Returns a generated error code
ERROR n — Simulate error number n
ERROR GOTO n — Goto line number n when error occurs
ERROR OFF — Turn off all error trapping
E — Edit last line entered
E n — Edit line n
E ↓ — Edit next line
E — Edit line previous to E
FRAMEx y a b c s — Draw an open rectangle as per BLOCK
FREE$ — Display amount of string space remaining
GOSUB n — Variable controlled GOSUB
GOTO n — Variable controlled GOTO
HANG — Halts program until a key is pressed
HOME — Returns the cursor to top left without clearing screen
HLINx y,a z s — Draw horizontal line start x y length a,character z screen s
INKEY — Same as INKEY$ but returns ASCII value
INPn A$ — Controlled input of length n into variable A$
INP@sc,n A$ — As INP but to specific screen location sc
KEY$$ — Auto repeat keyboard scan — returns with character
KEY — As KEY$ but returns ASCII value of key pressed
LIMIT= — Set the delimiter character for SEARCH and REPLACE
LOOK x y s — PEEK at screen location x y on screen s
LVARS — Give a list to the printer of active variables in a program
MOVE x y — Move contents of screen x to screen y
OLD — Attempt to recover a NEWED or crashed program
PAGE — List program in controlled chunks
PAUSE n — Cause program to pause n milliseconds
PLAN — Suite of printer commands
PROG x — Program definable keys A H (shifted)
PROG I — Define printer header
PRUNE — Removes all statements following a REM or
RDATA x A$ — Read x items of DATA into A$
REPLACE x y — Replace x with y in program at users descretion
REPLACE x y — As above but does all occurences without asking
RESUME — Resume program from error statement
RESUME NEXT — Resume program from statement after error
RESUME GOTO n — Resume program at line n
SEARCH x — Search for all occurences of x in a program
SET x y z s — Fill single column/row address x y with character z screen s
SWOP x,y — Swop contents of screens x and y
TRACE ON/OFF — Same as TRON except output goes to top right of screen
VARS — Displays a list of active variables in a program
VLIN x y,a,z s — Draw a vertical line start x,y height a character z screen s
WILD= — Set wild card character for SEARCH function

As you can see this is an excellent utility and you might be surprised to know that the above list is not the end of the story! TOOLKIT also provides a Screen Editor, which can be used on its own or with the Dragons line editor. If anyone has used a BBC micro they'll know what type of editor this is. Basically you use certain keys to move a cursor around and another key to copy everything that falls under the cursor. The difference here is that you can put text onto a temporary screen, edit it without disturbing your main listing and then return to the first screen. BRILLIANT!

SCRIBE

This is quite simply a hi res text generator. The difference is that it fully interacts with the Dragon basic/DeltaDOS; in other words you can write your programs using it. It is supplied on disc and therefore it is bootable. By using control codes you can perform special tasks such as selecting inverse characters and changing the colour set. The screen area is increased to 42 x 24 character density and again fully interfaces with BASIC although you cannot poke characters to the text screen as is usual with programs of this type. A very useful feature has been added to allow you to generate new characters from within a program — the PRINT! command. The character set also includes quite a few graphics characters such as playing card symbols etc and it can be saved for later retrieval. Another new command is the PUT@ command allowing you to precision place characters on the graphics screen. This is extremely useful when dealing with subscripts and superscripts.

The only failing of this software is that it does not fully interface with TOOLKIT. You cannot use the INP@ command or the TOOLKIT Editor whilst running SCRIBE. This is because the screen locations are not translated. It should be possible for a competent programmer to modify these problems though.

I hope that this review gets published and that it is of some interest. I hold a personal opinion that DeltaDOS users have been given a raw deal in the past in regards to printed matter and hopefully this will redress the balance slightly.

Oh yes I nearly forgot. I award TOOLKIT five Dragons AND SCRIBE four Dragons (only 4 because it does not interface with TOOLKIT).

D Martin

Toolkit

🐉🐉🐉🐉🐉

Scribe

🐉🐉🐉🐉

Auto Boot

Julian Osbourne outruns the BT Error in Basic or M/C.

ACCORDING to pages 22 and 27 of the DragonDOS manual the BOOT command is provided for 'loading other operating systems from disc and it goes on (in no great depth) to say that the system is loaded into memory at address 9728 (decimal) and executed from address 9730 (decimal) Great So what actually happens when you type BOOT with a normal disc in the drive?? Answer a BT Error (code 142)

Nothing about the BOOT command (or the BT error) is covered in any detail in any of the general reference books such as *Inside the Dragon* or *Anatomy of the Dragon* in fact the only time BOOT is mentioned is to say that its BASIC token is $D1 and the BOOT despatch address is at $DADC which if you are anything like me means nothing at all!

The object of this article is to show how to use the BOOT command on your own discs to simplify the running of your most often used programs so here goes

When it is called the BOOT routine in DragonDOS reads sector 3 of track 0 on the current drive (address $EB default = drive 1) If the first two bytes of this sector are the ascii codes for OS ($4F and $53 respectively) then 4K of code is loaded from disc into address 9728 (decimal) starting with sector 3 of track 0 When this code has been loaded it is executed from address 9730 (decimal)

The program given in this article uses the BOOT routine to implement an auto run facility for a given program (MENU BAS in this example) so that on typing BOOT the named program is loaded and run with no further action needed

The assembly listing is in three distinct pieces

1) The ascii codes for OS at placed at $2600 (9728 decimal)
2) The code to run MENU BAS when executed
3) The routine to save the above code to sector 3 track 0 (My thanks to Brian Cadge for supplying the code for part 2 in his *Dragon Answers* column for August 1985)

The save to disc part of the routine works as follows

To save a sector (256 bytes long) to disc location 235 (decimal) is set to the drive number locations 236 and 237 (decimal) are set to the track and sector where the data is to be saved to and locations 238 and 239 (decimal) are set to the address in memory where data is to be saved from The disc write routine at 49409 (decimal) is then called to save a sector at a time until the end of track 0 (which is approximately 4k of code) when the routine returns to BASIC.

On entering this program (by assembler or by machine code loader) save it to disc with

SAVE BOOTBIN" &H2600 &H2637 &H2615

Now insert a blank disc into the drive and run the routine with

EXEC &H2615

The routine will then save the auto-run part of the program to disc (eg from address 9728 onwards) at track 0 sector 3 and return to BASIC Now save onto this disc the program that you require the BOOT to operate on (eg the program MENU BAS in this example) and then type BOOT The program will then load and auto-run itself

The routine given will auto run BASIC or machine code programs by just changing the filename given in the FCC statement so you could use it to load *Moon Cresta* or *Beam Striker* just as easily as using it to run a menu program for your utilities disc

I am willing to attempt to answer any queries regarding the use of the BOOT program that may arise during its use. My address is 8 Helston Road Nailsea Bristol BS19 2UA or messages can be left in my Prestel Mailbox 272853351

```
         ORG   9728
START    FCC   /OS/      BOOT FLAG
*******************************
*THE PROGRAM BELOW WILL BE RUN *
*WHENEVER BOOT IS TYPED        *
*******************************
         LDX   £FNAME
         STX   166
         JMP   $D4A4
FNAME    FCC   34,/MENU.BAS/,34,0
*******************************
*THE NEXT PART OF THE PROGRAM  *
*SAVES THE ABOVE BOOT PROGRAM  *
*TO DISK AT TRACK 0,SECTOR 3   *
*******************************
@START CLRA
         CLR   236       TRACK £
         LDA   £3
         STA   237       SECTOR £
         LDX   £9728     START ADRS
SAVE     PSHS  X
         STX   238       BUFFER ADR
         JSR   49409     WRITE DISK
         PULS  X
         LEAX  256,X
         INC   237
         LDA   237
         CMPA  £19
         BLO   SAVE
         JMP   33649     GOTO BASIC
```

```
2600  2600                ORG   9728
2600 4F53       START    FCC   /OS/      BOOT FLAG
2602                     *******************************
2602                     *THE PROGRAM BELOW WILL BE RUN *
2602                     *WHENEVER BOOT IS TYPED        *
2602                     *******************************
2602 8E260A                   LDX   £FNAME
2605 9FA6                     STX   166
2607 7ED4A4                   JMP   $D4A4
260A 224D454E55 FNAME    FCC   34,/MENU.BAS/,34,0
2615                     *******************************
2615                     *THE NEXT PART OF THE PROGRAM  *
```

```
2615                   *SAVES THE ABOVE BOOT PROGRAM  *
2615                   *TO DISK AT TRACK 0,SECTOR 3   *
2615                   ********************************
2615 4F                @START CLRA
2616 OFEC                     CLR    236       TRACK £
2618 8603                     LDA    £3
261A 97ED                     STA    237       SECTOR £
261C 8E2600                   LDX    £9728     START ADRS
261F 3410              SAVE   PSHS   X
2621 9FEE                     STX    238       BUFFER ADR
2623 BDC101                   JSR    49409     WRITE DISK
2626 3510                     PULS   X
2628 30890100                 LEAX   256,X
262C OCED                     INC    237
262E 96ED                     LDA    237
2630 8113                     CMPA   £19
2632 25EB                     BLO    SAVE
2634 7E8371                   JMP    33649     GOTO BASIC
2637
2637
```

```
>D $2600,$2637
2600 4F 53 8E 26    O  S  .  &
2604 0A 9F A6 7E    .  .  .  .
2608 D4 A4 22 4D    .  .  "  M
260C 45 4E 55 2E    E  N  U  .
2610 42 41 53 22    B  A  S  "
2614 00 4F 0F EC    .  O  .  .
2618 86 03 97 ED    .  .  .  .
261C 8E 26 00 34    .  &  .  4
2620 10 9F EE BD    .  .  .  .
2624 C1 01 35 10    .  .  5  .
2628 30 89 01 00    0  .  .  .
262C 0C ED 96 ED    .  .  .  .
2630 81 13 25 EB    .  .  %  .
2634 7E 83 71 39    .  .  q  9
>


U $2600,$2637
2600 4F          CLRA
2601 53          COMB
2602 8E260A      LDX    £$260A
2605 9FA6        STX    <$A6
2607 7ED4A4      JMP    $D4A4
```

```
260A 224D        BHI    $2659
260C 45                       E
260D 4E                       N
260E 55                       U
260F 2E42        BGT    $2653
2611 41                       A
2612 53          COMB
2613 2200        BHI    $2615
2615 4F          CLRA
2616 0FEC        CLR    <$EC
2618 8603        LDA    £$03
261A 97ED        STA    <$ED
261C 8E2600      LDX    £$2600
261F 3410        PSHS   X
2621 9FEE        STX    <$EE
2623 BDC101      JSR    $C101
2626 3510        PULS   X
2628 30890100    LEAX   $0100,X
262C OCED        INC    <$ED
262E 96ED        LDA    <$ED
2630 8113        CMPA   £$13
2632 25EB        BCS    $261F
2634 7E8371      JMP    $8371
2637 39          RTS
>D
```

```
10 A=&H2600
20 READ A$
30 IF A$="**" THEN END
40 POKE A,VAL("&H"+A$)
50 A=A+1:GOTO20
60 DATA 4F,53,8E,26,0A,9F,A6,7E,D4,A4,22,4D
70 DATA 45,4E,55,2E,42,41,53,22,00,4F,0F,EC
80 DATA 86,03,97,ED,8E,26,00,34,10,9F,EE,BD
90 DATA C1,01,35,10,30,89,01,00,0C,ED,96,ED
100 DATA 81,13,25,EB,7E,83,71,39,**
```

Two extra commands

R. G. Whittaker inverts his text and scrolls it to the right

THIS article shows one of many ways to add new commands to Dragon Basic. It uses the fact that each time the Dragon reads a statement it jumps to location 377. Normally this contains code 57 which is an RTS instruction and so the processor returns to where it was but if we store code 126 (JMP instruction) in this location and then load location 378 with the address of a new routine we can cause the processor to access our routine every time it reads a statement.

Using this we can write a routine to check if our new command has been typed in and then execute a new routine to perform this command's function. This could be a routine to, for example, scroll the screen or execute an autorepeat function. The two commands I have added are REV which inverts the text screen, and SCR which scrolls the text screen to the right one character space.

First of all the program stores code 126 in location 377 and the start address of the program in 378. Then it returns to basic. When the routine START is executed it checks the A register to see if it is within the required range 65 (A) to 90 (Z). Then it checks if this is the first letter of the new command (R) and if not it jumps to another routine to check for the second command, otherwise it checks the rest of the letters in the command using the locations pointed to by location 166 which hold the rest of the letters in statement.

If the command is correct, the routine checks the next character to see if this is valid. Usually the only characters one has after commands are colons or spaces (except for input, point etc) and so these are checked for. If the character is an equals sign the processor would return to basic and allow you to use REV or SCR as a variable (IE SCR=10) and so if an equals sign or any other character is found the routine loads the B register with 2 and jumps to the ROM routine at 33604 which gives a syntax error.

To enter the new commands type in the loader and enter the codes line by line when asked then save the routine as instructed. Alternatively type in the assembly listing. The routines are easy to change and so you should be able to add different commands to your Dragon Basic.

Listing 1

```
32000  8E7D0CBF017A867EB701
32010  7939815A223C81412538
32020  815227037E7D4D9EA6E6
32030  01C14527037E7D4CE602
32040  C15627037E7D4CE603C1
32050  3A2707C12125037E7D91
32060  8E0400A6848840A7808C
32070  060025F5868639815327
32080  037E7D4C9EA6E601C143
32090  27037E7D4CE602C15227
32100  037E7D4CE603C13A2707
32110  C12125037E7D918E0600
32120  55823404C61FA682A701
32130  5A26F93504E7848C0400
32140  22EA868639C602BD8344
```

Listing 2

```
10 CLS
20 CLEAR200 31999:AD=32000:CS=0
30 PRINT" ENTER LINE OF HEX ('XX' TO END)"
40 PFINTAD;:INPUTH$
50 FORK=1TOLEN(H$)STEP2
60 M$=MID$(H$,K-2):IFM$='XX"THEN100
70 V=VAL("&H"+M$):POKEAD,V:CS=CS+V
80 AD=PD+1:NEXTK
90 GOTO40
100 CLS
110 IFCS<>14558THENPRINT"DATA ERPOR TPY AGAIN":END
120 PRINT@224,"  PRESS ANY KEYTO SAVE CODE :-"
130 A$=INKEY$:IFA$=""THEN130
140 CSAVEM"COMMANDS",32000,32150,32000
```

Listing 3

```
[illegible]                          7D03 BF 01 7A      [illegible]
[illegible]                          [illegible]  7C    [illegible]
00  [illegible]                      7D0 [illegible] 01 [illegible]
[illegible]                          [illegible]        [illegible]
```

```
[illegible]  [illegible] #90  [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]  [illegible]  [illegible] @3  [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]  [illegible]  [illegible]  LDB [illegible]
[illegible]
[illegible]
[illegible]
[illegible]  [illegible]  [illegible]  BNE [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
```

Scopy for SuperDos

Martyn Armitage remembers his youth and the horrors of swapping discs around.

RECENTLY a member of our Dragon Club upgraded his Cumana Dos V20 to Grosvenor SuperDos One of his regrets was the loss of the SCOPY command that the Cumana Dos provides

He asked if it was possible for me to write a utility that would replace this lost piece of soft/firmware and so being the knight in shining armour that I am and always willing to accept a challenge I took up the gauntlet The result of my efforts follow

The function of the SCOPY command for those who are strangers to the Cumana Dos is to enable the user to copy a file from one disc to another using one disc drive How I shudder when thinking back to my one drive days and the pain and effort involved in copying files from disc to disc especially with DATA files The program that follows will remove all the frustrations of the one drive owner (well perhaps I exaggerate one of them)

Listing 1 (the assembler source code) was written using the DSKDREAM package from Grosvenor Owners of other assemblers should have very little or no difficulty in converting it to their own assembler format For those of you without an assembler the BASIC program in listing 2 will install the machine code ready for saving the disc In both cases the resultant code will only run on the Eurohard and SuperDos DOSs If you want to run the program on the original Dragon Dos V10 then in the assembler source code don't include the V40x equates and replace all the references to them with the V10x version ie for V402 use V102 etc If you are assembling other than for the V1 Dos then the V10x equates can be left out

If you are using the basic listing to install the code then you will notice that some DATA statements as well as having a number have a second number following it in brackets ie line 140 has as one of the pieces of data D1(D4) If you are wanting to produce the version for Eurohard/Super Dos then use the first number and ignore the number in brackets If you are wanting to produce the version for DragonDos 1 then ignore the first number and use the number in brackets

To use the program is simplicity itself Before loading with a CLEAR200 &H7ED0 the program can be summoned to your aid by the use of the following

EXEC&H7ED1 fname1 ext TO fname 2 ext (ENTER)

Once this is entered a check is made to see if there is sufficient free memory for the utility to operate if there is less than 256 bytes the command will be aborted with an OM error If there is sufficient memory the screen will be cleared and the message

INSERT SOURCE
PRESS ANY KEY

will be printed Once these instructions have been carried out the screen will clear and the message

READING SOURCE

will be displayed The disc is then checked to see if the file exists if it doesn't then don't be too surprised to get a NE error If the file does exist then the screen will clear again and the next prompt

INSERT DESTINATION
PRESS ANY KEY

will be displayed After carrying out these instructions the screen will for an instant, while the file is created on the destination disc display the message

WRITING DESTINATION

The screen will then clear again and redisplay the INSERT SOURCE PRESS ANY KEY message The program will then proceed to read as much of the file into memory as will fit When memory is full or all the file has been read you will be prompted to change the disc etc. This prompting for disc changes will continue until the whole file has been transferred All this disc swapping may sound a bind but you will find that providing there is no program in memory (apart from SCOPY) then most files will be copied in two or three disc changes When copying very large files the number of disc changes can be reduced by ensuring that the only program in memory is the SCOPY one and by issuing a PLCLEAR 1 command before use the result being that as much memory as is available will be claimed by the utility

When copying a file it is most important that the two file names differ in some respect ie PROG1 PROG2 and that the extensions are included if the names are identical then the file will not be copied Changing the extension will suffice as the required difference The utility will copy a file to the same disc prompting for disc changes which should be ignored but using it to do so would be a waste of time as the COPY command of the Dos will do it without the prompts

Listing 1 Assembler Source Code

```
* Written in Position Independant Code
* So the resultant code can be easily
* relocated.
            ORG     $7ED1
            PUT     $4ED1
*****************************************
*  SCOPY FOR DRAGON/EUROHARD/SUPER DOS  *
*          WRITTEN USING DSKDREAM       *
*           BY: MARTYN ARMITAGE         *
*                 01/08/87              *
*****************************************
CREATE      EQU     $C00C
LENFIL      EQU     $C00E
CLOSAL      EQU     $C010
READFL      EQU     $C014
WRITFL      EQU     $C016
BACKDR      EQU     $C024

*****************************************
*   USE V10x EQUATES FOR DRAGON DOS 1   *
*****************************************
V101        EQU     $D604
V102        EQU     $C69E
V103        EQU     $CEAC
V104        EQU     $DF54
V105        EQU     $DF63
```

```
V106        EQU     $DF77
****************************************
*            USE V40x EQUATES FOR      *
*           EUROHARD AND SUPERDOS      *
****************************************
V401        EQU     $D6D1
V402        EQU     $C6C5
V403        EQU     $CED2
V404        EQU     $DF5A
V405        EQU     $DF6D
V406        EQU     $DF86
****************************************
7ED1  9D9F          SCOPY       JSR    <$9F
7ED3  AD9FC010                  JSR    (CLOSAL)
7ED7  2643                      BNE     PASERR
7ED9  1700BC                    LBSR    SOURCE
7EDC  3279                      LEAS    -7,S
7EDE  1F40                      TFR     S,D
7EE0  830100                    SUBD    #$0100
7EE3  931F                      SUBD    <$1F
7EE5  2B04                      BMI     OMERR
7EE7  5F                        CLRB
7EE8  4D                        TSTA
7EE9  2603                      BNE     NOERR
7EEB  7E8342        DMERR       JMP     $8342
7EEE  ED62          NOERR       STD     2,S
7EF0  BDD6D1                    JSR     V401    ;** V101 **
7EF3  2627                      BNE     PASERR
7EF5  A7E4                      STA     ,S
7EF7  AD9FC00E                  JSR     (LENFIL)
7EFB  261F                      BNE     PASERR
7EFD  1700AA                    LBSR    DESTIN
7F00  9DA5                      JSR     <$A5
7F02  81BC                      CMPA    #$BC    ,TO ?
7F04  2703                      BEQ     NOERR1
7F06  7E89B4                    JMP     $89B4
7F09  9D9F          NOERR1      JSR     <$9F
7F0B  BDD6D1                    JSR     V401    ;** V101 **
7F0E  2704                      BEQ     NOERR2
7F10  C1A0                      CMPB    #$A0    ;NE ERRDR ?
7F12  2608                      BNE     PASERR
7F14  A761          NOERR2      STA     1,S
7F16  AD9FC00C                  JSR     (CREATE)
7F1A  2703                      BEQ     MORE
7F1C  7EC6C5        PASERR      JMP     V402    ;** V102 **
7F1F  AD9FC024      MORE        JSR     (BACKDR)
7F23  A6E4                      LDA     ,S
7F25  97F1                      STA     <$F1
7F27  BDCED2                    JSR     V403    ;** V103 **
7F2A  EC0C                      LDD     12,X
7F2C  10A38810                  CMPD    16,X
7F30  2507                      BCS     NOCHEK
7F32  A60E                      LDA     14,X
7F34  A18812                    CMPA    18,X
7F37  2756                      BEQ     NOMORE
7F39  EE0C          NOCHEK      LDU     12,X
7F3B  A60E                      LDA     14,X
7F3D  A766                      STA     6,S
7F3F  EF64                      STU     4,S
7F41  EC62                      LDD     2,S
7F43  E365                      ADD     5,S
7F45  ED65                      STD     5,S
```

```
7F47  2402                BCC    NOINC
7F49  6C64                INC    4,S
7F4B  A664      NOINC     LDA    4,S
7F4D  A08810              SUBA   16,X
7F50  250E                BCS    HERE1
7F52  EC65                LDD    5,S
7F54  A38811              SUBD   17,X
7F57  2307                BLS    HERE1
7F59  EC8811              LDD    17,X
7F5C  A30D                SUBD   13,X
7F5E  ED62                STD    2,S
7F60  8D36      HERE1     BSR    SOURCE
7F62  A6E4                LDA    ,S
7F64  EE0C                LDU    12,X
7F66  E60E                LDB    14,X
7F68  10AE62              LDY    2,S
7F6B  9E1F                LDX    <$1F
7F6D  AD9FC014            JSR    (READFL)
7F71  26A9                BNE    PASERR
7F73  8D35                BSR    DESTIN
7F75  A661                LDA    1,S
7F77  97F1                STA    <$F1
7F79  BDCED2              JSR    V403    ;** V103 **
7F7C  10AE8810            LDY    16,X
7F80  E68812              LDB    18,X
7F83  EE62                LDU    2,S
7F85  9E1F                LDX    <$1F
7F87  AD9FC016            JSR    (WRITFL)
7F8B  268F                BNE    PASERR
7F8D  2090                BRA    MORE
7F8F  AD9FC010  NOMORE    JSR    (CLOSAL)
7F93  2687                BNE    PASERR
7F95  3267                LEAS   7,S
7F97  39                  RTS
7F98  3476      SOURCE    PSHS   D,X,Y,U
7F9A  BDBA77              JSR    $BA77
7F9D  8EDF5A              LDX    #V404  ;** V104 **
7FA0  BD90E5              JSR    $90E5
7FA3  8D1A                BSR    KEY
7FA5  308C23              LEAX   READ-1,PCR
7FA8  2010                BRA    RETURN
7FAA  3476      DESTIN    PSHS   D,X,Y,U
7FAC  BDBA77              JSR    $BA77
7FAF  8EDF6D              LDX    #V405  ,** V105 **
7FB2  BD90E5              JSR    $90E5
7FB5  8D08                BSR    KEY
7FB7  308C20              LEAX   WRITE-1,PCR
7FBA  BD90E5    RETURN    JSR    $90E5
7FBD  35F6                PULS   D,X,Y,U,PC
7FBF  8EDF86    KEY       LDX    #V406  ;** V106 **
7FC2  BD90E5              JSR    $90E5
7FC5  BDB505              JSR    $B505
7FC8  BDBA77              JSR    $BA77
7FCB  39                  RTS
7FCC  52454144  READ      FCC    /READ/
7FD0  494E4720            FCC    /ING /
7FD4  534F5552            FCC    /SOUR/
7FD8  434500              FCC    /CE/,0
7FDB  57524954  WRITE     FCC    /WRIT/
7FDF  494E4720            FCC    /ING /
7FE3  44455354            FCC    /DEST/
7FE7  494E4154            FCC    /INAT/
```

```
7FEB  494F4E00              FCC     /ION/,0

     ;WHEN THE PROGRAM HAS BEEN ASSEMBLED SAVE IT TO
     ;DISK WITH  SAVE"SCOPY",&H4ED1,&H4FEF,&H4ED1 THEN
     ;ENTER CLEAR200,&H7ED0:LOAD"SCOPY.BIN",&H7ED1
     ;ONCE LOADED RESAVE TO DISK WITH
     ,SAVE"SCOPY",&H7ED1,&H7FEF,&H7ED1
     ;THE PROGRAM CAN THEN SUBSEQUENTLY BE RELOADED
     ;WITHOUT HAVING TO USE AN OFFSET TO RELOCATE IT.
    0 REM *USERS OF DRAGON DOS V.1. USE THE
    1 REM *NUMBERS IN BRACKETS INSTEAD OF THE
    2 REM *NUMBER IMMEDIATELY BEFORE IT
    3 REM *IE... DATA 4E(42) USE 42 INTEAD OF 4E
    4 REM *USERS OF OTHER DOS'S IGNORE THE NUMBERS
    5 REM *IN BRACKETS...
    6 REM ***********************************
    7 REM * SCOPY FOR DRAGON/EUROHARD/SUPER/DOS *
    8 REM *   BY MARTYN ARMITAGE 01/08/1987     *
    9 REM ***********************************
    10 CLEAR 200,&H7ED0:CLS:PRINT"INSTALLING SCOPY"
    20 FOR I = &H7ED1 TO &H7FEF
    30 READ A$:A=VAL("&H"+A$)
    40 POKE I,A CS=CS+A
    50 NEXT
    60 IF CS<>32404(32264) THEN PRINT "ERROR IN DATA":END
    70 CLS.PRINT"SCOPY INSTALLED.":PRINT"START ADDRESS &H7ED1"
    80 PRINT"  END ADDRESS &H7FEF"
    90 PRINT" EXEC ADDRESS &H7ED1"
    100 PRINT"REMEMBER TO SAVE IT!":END
    110 DATA 9D,9F,AD,9F,C0,10,26,43,17,00
    120 DATA BC,32,79,1F,40,83,01,00,93,1F
    130 DATA 2B,04,5F,4D,26,03,7E,83,42,ED
    140 DATA 62,BD,D6,D1(D4),26,27,A7,E4
    150 DATA AD,9F,C0,0E,26,1F,17,00,AA,9D
    160 DATA A5,81,BC,27,03,7E,89,B4,9D,9F
    170 DATA BD,D6,D1(D4),27,04,C1,A0,26
    180 DATA 08,A7,61,AD,9F,C0,0C,27,03,7E
    190 DATA C6,C5(9E),AD,9F,C0,24,A6,E4
    200 DATA 97,F1,BD,CE,D2(AC),EC,0C,10
    210 DATA A3,88,10,25,07,A6,0E,A1,88,12
    220 DATA 27,56,EE,0C,A6,0E,A7,66,EF,64
    230 DATA EC,62,E3,65,ED,65,24,02,6C,64
    240 DATA A6,64,A0,88,10,25,0E,EC,65,A3
    250 DATA 88,11,23,07,EC,88,11,A3,0D,ED
    260 DATA 62,8D,36,A6,E4,EE,0C,E6,0E,10
    270 DATA AE,62,9E,1F,AD,9F,C0,14,26,A9
    280 DATA 8D,35,A6,61,97,F1,BD,CE,D2(AC)
    290 DATA 10,AE,88,10,E6,88,12,EE,62,9E
    300 DATA 1F,AD,9F,C0,16,26,BF,20,90,AD
    310 DATA 9F,C0,10,26,87,32,67,39,34,76
    320 DATA BD,BA,77,8E,DF,5A(54),BD,90
    330 DATA E5,8D,1A,30,8C,23,20,10,34,76
    340 DATA BD,BA,77,8E,DF,6D(63),BD,90
    350 DATA E5,8D,08,30,8C,20,BD,90,E5,35
    360 DATA F6,8E,DF,86(77),BD,90,E5,BD
    370 DATA B5,05,BD,BA,77,39,52,45,41,44
    380 DATA 49,4E,47,20,53,4F,55,52,43,45
    390 DATA 00,57,52,49,54,49,4E,47,20,44
    400 DATA 45,53,54,49,4E,41,54,49,4F,4E
    410 DATA 00,00,00,00,00,00,00,00,00,00
```

Down in the dumps

Dragon User frequently gets requests for screen dumps Here we present some specimens from our collection

IN previous issues of *Dragon User* routines have been given for graphics dumps to a variety of printers One type that has been omitted is a Tandy dot matrix printer The programs described in this article have been designed for and used on a Tandy DMP 110 printer which is capable of operating in a 16 dot addressable high resolution graphics mode The small size dump (**listing 1**) is compatible with all 2-colour graphics modes on the Dragon and gives a printout with the correct orientation Because of size limitations a dump of double size needs to be done sideways **Listing 2** gives a program which will operate in PMODE 4 1 only Both programs are written in position independent code and can be located anywhere in memory

In use both programs require the pmode foreground and background colours to be set Once this information is available a dump is performed with the current foreground colour as black A full list of both Dragon and printer codes used by the programs is given in table 1 Output to the printer is by a JSR instruction to the ROM location &H 800F with the code to be output in the A register

The mode of information storage used by the Dragon in its graphics screen memory requires special techniques to be adopted if dumps are to be performed in the correct orientation This is achieved in **listing 1** by the use of a buffer store Prior to the testing of the screen memory the particular PMODE in use is examined and tested for validity If an invalid PMODE (1 or 3) is in use no printer output is made and an immediate return is made to the calling program Once the PMODE in use has been determined appropriate pin firing patterns are stored in the locations PPAT1 to PPAT4 The screen start location and the number of bytes in each row are then determined Once these parameters have been set up the screen memory is scanned row by row and appropriate pin firing patters for each bit loaded into the buffer When four rows (two for PMODE 0) have been examined the printer is initialised and the contents of the store output to the printer

The double size dump (**listing 2**) presents an alternative approach to the problem of unravelling screen memory In this case the screen memory is examined column by column The contents of each byte are manipulated between the A B registers and a temporary store prior to being output to the printer In this mode each column is examined twice

The approaches to screen dumping outlined in this article can be extended to give either a double density dump a double size horizontal partial dump or a small sideways dump **Listings 1 and 2** have been produced using Dskdream although the hex codes given in column 2 could always be entered using one of the many Hex Loaders that have appeared in these pages Assuming that one of the programs has been loaded at the default location of &H 7C00 (the memory requirement is &H 400 bytes) it can be called by EXEC &H 7C00

Richard Hatton

TABLE 1 (All Numbers in HEX)

Dragon Parameters

800F	Output of code to printer
B2	Foreground colour
B6	PMODE
B9	Number of Bytes in row
B7	Bottom of graphics screen
BA	Top of graphics screen

Printer Parameters

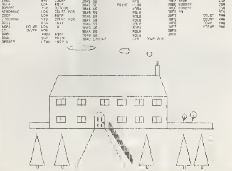
1B 47	8/120 line feed
1B 10,xx	position print head
1B 4Bxx	send high resolution graphics data
1A	carriage return line feed
1E	end graphics mode

```
3001                    *       LISTING 1
3001                    *
3001                    * COPYRIGHT J R HATTON
3001                    *       SEPTEMBER 1985
3001  800F      OUTCHR  EQU     $800F
3001 3496               PSHS    A,B,X,Y
3003 D6B2               LDB     $B2
3005 C100               CMPB    #00
3007 2708               BEQ     BLK
3009 C643               LDB     #$43
300B E78D0089           STB     COL,PCR
300F 2006               BRA     ST
3011 C612       BLK     LDB     #$12
3013 E78D0081           STB     COL,PCR
3017 9EBA       ST      LDX     $BA
3019 8D25               BSR     PMODE
301B E68D01A?           LDB     ERDR,PCR
301F C176               CMPB    #$76
3021 2601               BNE     CONT
3023 39                 RTS
3024 8D66       CONT    BSR     CLEAR
3026 318D013A           LEAY    STORE,PCR
302A 10AF8D0185         STY     STOST,PCR
302F 8D71               BSR     GETSQ
3031 170100             LBSR    PRINT
3034 8C07               CMPX    #07
3036 26EC               BNE     CONT
3038 861E               LDA     #$1E
303A BD800F             JSR     OUTCHR
303D 3536               PULS    Y,X,A,B
303F 39                 RTS
3040 D6B6       PMODE   LDB     $B6
3042 8602               LDA     #2
3044 A78D0174           STA     PASND,PCR
3048 A78D0171           STA     ROWND,PCR
304C C100               CMPB    #00
304E 260D               BNE     PM2
3050 8610               LDA     #10
3052 A78D016B           STA     PPAT1,PCR
3056 86A0               LDA     #160
3058 A78D0163           STA     PPAT2,PCR
305C 39                 RTS
305D 8602       PM2     LDA     #2
305F A78D015E           STA     PPAT1,PCR
3063 8604               LDA     #4
3065 A78D0154           STA     ROWND,PCR
3069 8608               LDA     #8
306B A78D0150           STA     PPAT2,PCR
306F 8620               LDA     #32
3071 A78D014B           STA     PPAT3,PCR
3075 8680               LDA     #128
3077 A78D0145           STA     PPAT4,PCR
307B C102               CMPB    #2
307D 2601               BNE     PM4
307F 39                 RTS
3080 C104       PM4     CMPB    #4
3082 2601               BNE     ERR
3084 39                 RTS
3085 8676       ERR     LDA     #$76
3087 A78D0137           STA     ERDR,PCR
308B 39                 RTS
308C 318D0334   CLEAR   LEAY    STOEND,PCR
3090 3420               PSHS    Y
3092 318D012E           LEAY    STORE,PCR
3096 4F                 CLRA
3097 5F                 CLRB
3098 EDA1       CL      STD     ,Y++
309A 10ACE4             CMPY    ,S
309D 26F9               BNE     CL
309F 3262               LEAS    2,S
30A1 39                 RTS
30A2 E68D0115   GETSQ   LDB     PASND,PCR
30A6 E78D0109           STB     PASCNT,PCR
30AA 318D0110   PASS    LEAY    PPAT1,PCR
30AE 10AF8D0107         STY     PATND,PCR
30B3 E68D0106           LDB     ROWND,PCR
30B7 E78D00F8           STB     ROWCNT,PCR
30BB D6B9       ROW     LDB     $B9
30BD E78D00F6           STB     BYTCNT,PCR
30C1 10AE8D00F2         LDY     STOST,PCR
30C6 A680       BYTE    LDA     ,X+
30C8            COL     RMB     1
30C9 8580               BITA    #$80
30CB 8D59               BSR     STOBIT
30CD 8540               BITA    #$40
30CF 8D55               BSR     STOBIT
30D1 8520               BITA    #$20
30D3 8D51               BSR     STOBIT
30D5 8510               BITA    #$10
30D7 8D4D               BSR     STOBIT
30D9 8508               BITA    #$08
30DB 8D49               BSR     STOBIT
30DD 8504               BITA    #$04
30DF 8D45               BSR     STOBIT
30E1 8502               BITA    #$02
30E3 8D41               BSR     STOBIT
30E5 8501               BITA    #$01
30E7 8D3D               BSR     STOBIT
30E9 6A8D00CA           DEC     BYTCNT,PCR
30ED E68D00C6           LDB     BYTCNT,PCR
30F1 C100               CMPB    #00
30F3 26D1               BNE     BYTE
30F5 6A8D00BD           DEC     ROWCNT,PCR
30F9 10AE8D00BC         LDY     PATND,PCR
30FE 3121               LEAY    1,Y
3100 10AF8D00B5         STY     PATND,PCR
3105 E68D00AD           LDB     ROWCNT,PCR
3109 C100               CMPB    #00
310B 26AE               BNE     ROW
310D 6A8D00A4           DEC     PASCNT,PCR
3111 10AE8D0098         LDY     STOST,PCR
3116 3121               LEAY    1,Y
3118 10AF8D0093         STY     STOST,PCR
311C E68D0093           LDB     PASCNT,PCR
3121 C100               CMPB    #00
3123 2685               BNE     PASS
3125 39                 RTS
3126 2703       STOBIT  BEQ     SET
3128 3122               LEAY    2,Y
312A 39                 RTS
312B E69C0086   SET     LDB     [PATND,PCR]
312F EBA4               ADDB    ,Y
3131 E7A0               STB     ,Y+
3133 39                 RTS
3134 8618       PRINT   LDA     #$18
3136 BD800F             JSR     OUTCHR
3139 8647               LDA     #$47
313B BD800F             JSR     OUTCHR
313E 8618               LDA     #$18
3140 BD800F             JSR     OUTCHR
3143 8610               LDA     #$10
3145 BD800F             JSR     OUTCHR
3148 8600               LDA     #$00
314A BD800F             JSR     OUTCHR
```

```
314D 86E0                LDA   #224
314F BD800F              JSR   OUTCHR
3152 8618                LDA   #$18
3154 BD800F              JSR   OUTCHR
3157 8649                LDA   #$49
3159 BD800F              JSR   OUTCHR
315C 8602                LDA   #$02
315E BD800F              JSR   OUTCHR
3161 8600                LDA   #$00
3163 BD800F              JSR   OUTCHR
3166 318C5B              LEAY  STORE PCR
3169 D666                LDB   $66
316B C104                CMPB  #4
316D 271A                BEQ   PR4
316F C6FE       RP8      LDB   #$FE
3171 E78C4F              STB   CHRNO PCR
3174 8D29       RPT0     BSR   PROUT
3176 313E                LEAY  -2 Y
3178 8D25                BSR   PROUT
317A E68C46              LDB   CHRNO PCR
317D C100                CMPB  #00
317F 26F3                BNE   RPT0
3181 8D1C                BSR   PROUT
3183 313E                LEAY  -2 Y
3185 8D18                BSR   PROUT
3187 2010                BRA   ENDPR
3189 C6FF       PR4      LDB   #$FF
318B E78C35              STB   CHRNO,PCR
318E 8D0F       RPT1     BSR   PROUT
3190 E68C30              LDB   CHRNO PCR
3193 C100                CMPB  #00
3195 26F7                BNE   RPT1
3197 8D06                BSR   PROUT
3199 861A       ENDPR    LDA   #$1A
319B BD800F              JSR   OUTCHR
319E 39                  RTS
319F A6A0       PROUT    LDA    Y+
31A1 BD800F              JSR   OUTCHR
31A4 A6A0                LDA    Y+
31A6 BD800F              JSR   OUTCHR
31A9 8600                LDA   #00
31AB BD800F              JSR   OUTCHR
31AE BD800F              JSR   OUTCHR
31B1 6A8C0F              DEC   CHRNO,PCR
31B4 39                  RTS
31B5            FASCNT   RMB   #1
31B6            ROWCNT   RMB   #1
31B7            BYTCNT   RMB   #1
31B8            STOST    RMB   #2
31BA            PATNO    RMB   #2
31BC            PASNO    RMB   #1
31BD            ROWNO    RMB   #1
31BE            PPAT1    RMB   #1
31BF            PPAT2    RMB   #1
31C0            PPAT3    RMB   #1
31C1            PPAT4    RMB   #1
31C2            EROR     RMB   #1
31C3            CHRNO    RMB   #1
31C4            STORE    RMB   #1
31C5                     RMB   #$FF
32C4                     RMB   #$FF
33C3                     RMB   #1
33C4            STOEND   RMB   #1
33C5
```

LISTING 2

```
3801                    *COPYRIGHT J P HATTON
3801                    *MARCH 1987
3801  800F     OUTCHR   EQU   $800F
3801  3436              PSHS  Y X A B
3803  D682              LDB   $82
3805  C100              CMPB  #00
3807  2604              BNE   BLK
3809  C643              LDB   #$43
380B  E78C1E            STB   INVTA PCR
380E  E78C40            STB   INVTB PCR
3811  2005              BRA   START
3813  C612     BLK      LDB   #$12
3815  E78C14            STB   INVTA PCR
3818  E78C36            STB   INVTB PCR
381B  8E23E0   START    LDX   #$23E0
381E  AF8D00D1 ROW      STX   COLST PCR
3822  8D4C              BSR   INIT
3824  C60F              LDB   #$0F
3826  E78D00CB          STB   COUNT PCR
382A  A684     COLMA    LDA    X
382C  12       INVTA    NOP
382D  84F0              ANDA  #$F0
382F  47                ASRA
3830  47                ASRA
3831  47                ASRA
3832  47                ASRA
3833  8D6E              BSR   PRINT
3835  3088E0            LEAX  -$20 X
3838  6A8D00B9          DEC   COUNT PCR
383C  26EC              BNE   COLMA
383E  861A              LDA   #$1A
3840  BD800F            JSR   OUTCHR
3843  AE8D00AC          LDX   COLST PCR
3847  C60F              LDB   #$0F
3849  E78D00A8          STB   COUNT PCR
384D  8D21              BSR   INIT
384F  A684     COLMB    LDA    X
3851  12       INVTB    NOP
3852  840F              ANDA  #$0F
3854  8D4D              BSR   PRINT
3856  3088E0            LEAX  -$20 X
3859  6A8D0098          DEC   COUNT PCR
385D  26F0              BNE   COLMB
385F  861A              LDA   #$1A
3861  BD800F            JSR   OUTCHR
3864  30891001          LEAX  $1001 X
3868  8C2400            CMPX  #$2400
386B  26B1              BNE   ROW
386D  3536              PULS  X Y A B
386F  39                RTS
3870  8618     INIT     LDA   #$18
3872  BD800F            JSR   OUTCHR
3875  8647              LDA   #$47
3877  BD800F            JSR   OUTCHR
387A  861B              LDA   #$1B
387C  BD800F            JSR   OUTCHR
387F  8610              LDA   #$10
3881  BD800F            JSR   OUTCHR
3884  8600              LDA   #$00
3886  BD800F            JSR   OUTCHR
3889  8606              LDA   #$06
388B  BD800F            JSR   OUTCHR
388E  8618              LDA   #$18
3890  BD800F            JSR   OUTCHR
3893  8640              LDA   #$40
3895  BD800F            JSR   OUTCHR
3898  8603              LDA   #$03
389A  BD800F            JSR   OUTCHR
389D  8600              LDA   #$00
389F  BD800F            JSR   OUTCHR
38A2  39                RTS
38A3  5F       PRINT    CLRB
38A4  46                RORA
38A5  59                ROLB
38A6  59                ROLB
38A7  59                ROLB
38A8  59                ROLB
38A9  46                RORA
38AA  59                ROLB
38AB  59                ROLB
38AC  E78C47            STB   TEMP PCR
38AF  59                ROLB
38B0  59                ROLB
38B1  EB8C42            ADDB  TEMP PCR
38B4  E78C40            STB   PTEMP PCR
38B7  5F                CLRB
38B8  46                RORA
38B9  59                ROLB
38BA  59                ROLB
38BB  59                ROLB
38BC  59                ROLB
38BD  46                RORA
38BE  59                ROLB
38BF  59                ROLB
38C0  E78C33            STB   TEMP PCR
38C3  59                ROLB
38C4  59                ROLB
38C5  EB8C2E            ADDB  TEMP PCR
38C8  1E89              EXG   A B
38CA  BD800F            JSR   OUTCHR
38CD  A78C26            STA   TEMP PCR
38D0  A68C24            LDA   PTEMP PCR
38D3  BD800F            JSR   OUTCHR
38D6  8600              LDA   #$00
38D8  BD800F            JSR   OUTCHR
38DB  BD800F            JSR   OUTCHR
38DE  A68C15            LDA   TEMP PCR
38E1  BD800F            JSR   OUTCHR
38E4  A68C10            LDA   PTEMP PCR
38E7  BD800F            JSR   OUTCHR
38EA  8600              LDA   #$00
38EC  BD800F            JSR   OUTCHR
38EF  BD800F            JSR   OUTCHR
38F2  39                RTS
38F3           COLST    RMB   #$02
38F5           COUNT    RMB   #$01
38F6           TEMP     RMB   #$01
38F7           PTEMP    RMB   #$01
38F8
38F8
```



A Composer at Ossett

George and Jonathan Cartwright start out reminiscing and find themselves answering difficult questions

TELLING friends that you are going to spend a day in Ossett demonstrating at a computer show brings forth a flurry of comments Where? You're going to do *what?* What's a Dragon? Why? and so on The last question is easy to answer

Having submitted a high resolution text utility last year to John Penn for evaluation it transpired that the launch of our software would be at the *First* John Penn show at Ossett We set to work producing some demonstration programs in the hope of catching the eye of some other software houses At the time we had three games and *Composer Companion* in development The 1986 show gave us the chance to talk to people in the business and chat to that band of diehard Dragon users who keep the computer alive

All the comments (cruel and constructive) we absorbed in that first show gave us the confidence to continue developing resulting in five programs being accepted by a software house the following December (*Now you know what shows are for folks — Ed*)

This year we were kindly asked to attend Ossett again The biggest job was packing all the gear into the car for the journey across the Pennines However the effort was worth it and soon we were talking non stop to Dragon fans Many of the people who visited our stand had been at the 1986 show and they actually remembered us! (Greetings to Mr Hollimen from Harrogate and also to Stuart Beardwood and the kids from Westgarth Children's Home Stuart's computer work with disabled children deserves the support of Dragon fans (see DU Oct 86 and Feb 87)

An anecdote at this point may give the readers some insight into the saying It takes all sorts to make a computer show The owner of one stand was asked if he would like to buy a new program We were asked if we would load this game so that an on-the-spot assessment could be made This game was a shoot em up type and graphically very good The vendor wanted to sell it outright for a LARGE sum of money (don't we all?) In these days of a static market such deals are a thing of the past!

At the Quickbeam stand I talked to Wayne Smithson and discovered that SuperDOS doesn't need to be soldered in to the controllers Not a lot of Cartwrights knew that I had been apprehensive about the juxtaposition of a soldering iron and a Dragon for some time So off I went to Harris Microsoftware and bought SuperDOS — a bargain that no disc user should be without

There were a number of new releases — Wayne's *Superkid* several from Microvision on both cassette and disc *Crazy Footer* from Computape New releases are a sign of support for the Dragon — long may that support last Really heavy users were catered for by John Penn with OS-9 Compusense and Microvision with FLEX and Harris with BASIC 42 Music was well represented with Chris Jolly's DAMS David Makin displaying *Music Maker* and us with *Composer Companion*

Talking of *Composer Companion* something that we were asked more often than Can I have a leaflet? was How can I transfer *Composer* from tape to disc? The method to transfer from tape to Dragon DOS or compatible is as follows

1 CLOADM *Composer* into your Dragon with DOS detached (use the program in March 1985 DU)

2 Select the option to save a tune to tape as M/C (you don't actually have to write a tune if the program finds no tune in memory it just saves the *Composer* code itself Note down the start and end and exec addresses of the program

3 Switch off your Dragon then switch it on again no need to detach DOS this time

4 CLOADM the tune you saved to tape

5 SAVE it to disc with the start end and exec addresses that you noted down

Having done this you can load in *Composer Companion* and it will run perfectly Anytime you subsequently wish to use *Composer Companion* simply load up the saved tune first I hope this is of use to people

Since several hundred people have bought our HIRESTEXT program (still available at a knockdown price of £3 from John Penn) I suppose I'd better tell you how to convert that from tape to disc Once again this conversion is for Dragon DOS

1 Power up your Dragon with DOS installed

2 PCLEAR6 CLOADM RESTEXT 1536

3 Enter the following program and run it

```
0  ' RESTEXT  FOR DRAGONDOS
CONVERSION PROGRAM
1 'FIRST CLOADM RES-TEXT 1536
2 'THEN RUN THIS PROGAM
3 'PLEASE ADD 1536 TO ALL POKES
REGARDING RESTEXT
4  'I E  POKE10005+1536 255  FOR
INVERSE
10 FOR I=&H2C00 TO&H2C88
20 RESTORE PRINTI A=PEEK(I)
30 IF A=&H1E THEN POKEI &H24
40 IF A*256+PEEK(I+1) &H2C00 THEN
60
50 NEXT
60 B=PEEK(I-1)
70 READ P$ IF P$=   THEN NEXT GOT
O110
80 IF B=VAL( &H +P$) THEN N90 ELSE
70
90 A=A+6POKEI,A NEXT
100  DATA  B710 BFC3,FD FC BE F7 F6
B6*
110 PCLEAR6 DEFUSR0=9726+1536
120 PMODE4 1 SCREEN1 1 PCLS
130 X=0 Y=0 A$=  DRAGONDOS CON
VERSION PROGRAM  GOSUB150
140 SCREEN1 1 GOTO140
150     POKE10012+1536Y POKE10013+
1536, X Z=USR0(VARPTR(A$)) Y=PEEK
(10012+1536) X=PEEK(10013+1536)
RETURN
```

4 SAVE the newly converted program to disc using

```
SAVE  RESTEXT BIN  7660+1536 10015
+1536 41194
```

5 From now on all pokes regarding the program are as follows

```
POKE 10013+1536  X co ord of text
POKE 10012+1536  Y co-ord of text
POKE 10005+1536, 255 — Inverse text
POKE 10005+1536, 0 — Normal text
DEFUSR0=9726+1536
```

6 The designer program on the tape will not work with the disc version Therefore you must write your own or design your character sets using the tape version of HI RESTEXT and then convert them to disc

I have also been asked how to convert HI RESTEXT to run on the 64 Not owning a 64 I can't test this but here goes

1 Load up the tape version of HI RESTEXT as normal

2 Find out the 64 equivalent of ROM routine S8827 from your local whizz kid

3 POKE this value into locations S2601 and S2602 The program should then work as usual

Tandy Co-co owners should be able to use the program by poking the Co-co equivalent of ROM routine S8827 into the same locations as above (The designer program will have to be converted by a Dragon owning friend into Tandy ASCII however)

I think we've just about got time for a quick plug! Many people saw our unfinished game *Rolaball* at Ossett some even thought it was *Airball*! Well it is now finished It is a 3D game with a *Marble Madness* style landscape which covers 49 screens Having attracted the attention of the gamers who read this magazine, all we will say now is that it is in the hands of a software house who are at this very moment trying to last more than 30 seconds without getting killed

Well that's about it. Who said programmers don't care? What more do you want — blood? (*Hoppit Jon — that's editorial territory!*)

Winners and Losers

Every month, Gordon Lee will look at some prize programming points from a previous month's competition

THE insertion of a single word in the May competition would have made all the difference. How I wish that I had specified sets of *common* words — or even *reasonably common words — or even sorts of words that the average man in the street is likely to know if he hasn't a copy of the OED stuffed up his jumper!*

As it was, all sorts of sequences came flooding in, rich with the dredgings from numerous dictionaries. Let me confess that I would have been quite happy with the two sets of four words that almost every entrant managed to find:

GOD OWL SAP WET
ADD BEE ILL LOO

(Incidentally, loo is a card game, but the more usual meaning is alright by me!)

I must share the sentiment of E A Newman who ends his letter with the philosophically optimistic words — I look forward to hearing about the sets I have missed in due course. Well E A, some of the more bizarre attempts will follow in due course, but first, what methods did our competitors use?

The minority choice was to use a vocabulary of several hundred words typed into DATA lines. Each word is taken in turn, the offset of the second and third letters is calculated, and the remaining list of words is scanned for other words having an identical offset. The limitation of this method is that it can only be as comprehensive as its list of words and also the selection of just three-letter words can be difficult. A crossword compiler such as Cassell's is ideal for this purpose.

By far the most popular method was to generate all possible permutations of three-letter sequences. A condition was usually included to reject all sets which did not contain a vowel (or Y). The set was displayed and the operator either accepted or rejected it, depending on whether it was an acceptable word. In the event of an acceptance all other three-letter combinations containing at least one vowel were displayed. By inspection the sets of four (or more!) words were compiled. A representative example (from Keith David) is shown.

And now for the results (at least the ones that we can print!). Taking as reference *Chambers Twentieth Century Dictionary* (1972 edition) I'm disallowing awk, ahm, ahu, adc, apt, taf and ivo — whatever they might mean. Nevertheless, the amazing erudition of our competitors provided no shortage of sets of four words and, amazingly, a few five word sets! From Keith David comes:

DAN HER IFS ROB URE
ALS ITA PAH TEL WHO
CRY ETA FUB LAH TIP

Keith also included five word sets using GJU, HUH and CEL — sorry! not in Chambers.

Jake Anderson supplied
CRY ETA FUB LAH TIP
CHA DIB PUN VAT TYR
ARK DUN JAT RIB ULE

Of the four word sets there were too many to print, but here is a bit of modern verse compiled from some of them:

Dan her rob ifs, enn err ree boo
Dom jus pay tec, add bee ill loo
Cly lob ire ran, bod erg nap ret
Dal hep Hi spa, god owl sap wet

Bum has lew pia, dso taw pea te
Foh irk rat vex, lah mho nip wry
Dew lie rok urn, ids jet nix lod
Bop ers nab ref, ewl dzo mix sod

I don't expect it means much — but it sounds good, don't you think?

(That just about takes the biscuit for Vogan verse, Gordon. We didn't know you had it in you — how about taking it back?! — Ed.)

```
Keith David's Word-Generating Program

  10 CLS
  20 A$="ABCDEFGHIJKLMNOPQRSTUVWXYZ"
  30 FOR B=0 TO 25
  40 FOR C=0 TO 25
  50 B$=RIGHT$(A$,26-B)+LEFT$(A$,B)
  60 C$=RIGHT$(A$,26-C)+LEFT$(A$,C)
  70 FOR X=1 TO 26
  80 Y$=MID$(A$,X,1)+MID$(B$,X,1)+MID$(C$,X,1)
  90 FOR N=1 TO 3
 100 Z$=MID$(Y$,N,1)
 110 IF INSTR("AEIOUY",Z$)=0 THEN NEXT N ELSE PRINT Y$,
 120 NEXT X
 130 I$=INKEY$:IF I$="" THEN 130
 140 CLS
 150 NEXT C,B
```

Communication

Send in your questions, requests, and pleas to Communication, Dragon User, 12-13 Little Newport Street, London WC2.

Problem: I need help in converting Dragon games to disc under SuperDOS.
Name: K Hunt
Address: 11 Demarnham Close, West Bromwich, W Midlands B70 5RJ

Problem: Has anyone got a Sanyo DR101 recorder for sale?
Name: T Connor
Address: 9 Kenvington Drive, St Paul's Cray, Orpington, Kent

Problem: I have a Logitec FT 5000 printer made by the Kanto Denshi Corporation of Japan. Unfortunately I have not got a printer manual and I have not been able to find an agent in this country as yet. Has anyone heard of them? Has anyone got a manual? The printer seems to run on a mixture of Epson, Star and IBM codes.
Name: George Dawson
Address: Me and My Girl, 18 Caroline Close, Alvaston, Derby DE2 0QX

Problem: Do you know where I can get any information of Floating Point Mathematics routines for the Dragon or 6809 microprocessor based systems?
Name: R W Fair
Address: 10 Wilford Place, Hartshill, Stoke-on-Trent, Staffs ST4 7LL

Expert's Arcade Arena

**Write to The Expert at Dragon User
12-13 Little Newport St, London WC2H 7PP
with all your arcade tips and hints**

MANY many moons ago Dragon owners were introduced to a Mr Paul Burgin by virtue of three programs, titled simply Program A, Program B and Program C. Ever since their publication in this magazine, and in particular with reference to their use in this column, there has been nothing but letters either saying The man's a genius or These things don't work!

It has often been observed that human beings are quicker to criticise than praise and this was certainly true where Mr Burgin's fans were concerned. It is for this reason that this month I turn the matter over to the man himself or at least to his own two hacking sheets. I will trouble you little longer as page space is precious when duplicating something as complex as this and besides at least if I get this over and done with I won't have to print these darn programs A, B and C until everyone has to renew their subscriptions again next year.

The sheets are well worth looking over as they contain at least one reference back to this column (circles within circles)! The amateur hacker will find the Pokes useful especially as they come in the main with a clear instruction of how to load the game up and then operate the Poke.

These are the best presented hacking sheets I have seen as they pack a lot of information in to a small space without losing clarity. If anyone can do better without repeating the methods or pokes of these gems then send 'em in. The reward? Erm well I'll think of something stupid! And in the meantime may I be the first to congratulate Paul Burgin on being the first winner of the DEC award (Dedicated Expert Column)?

Next month the column returns to its normal fab and groovy self with more pokes maps and waffle from me.

Your loving expert

(And probably another hacking sheet from Paul Burgin as we only have room for one this month — Ed)

Adventure Contact

Adventure *Kat Trilogy/Final Mission*
Problem What are the five answers for the Guardians?
Name R Vaughan
Address 189 Port Tennant Road Port Tennant Swansea SA1 8JU

Adventure *Tanglewood*
Problem Cannot get Foghorn's glasses. I have got the Sear's hat. What next? Help!
Name Mark Coops
Address 16 Willows Drive Meirheath Stoke on Trent ST3 7LZ

Adventure 1) *Tanglewood* 2) *Adventure Trilogy*
Problem 1) How do I get the fishing rod off the stone gnome? 2) What do I do in the white void?
Name Tim Entwhistle
Address 8 Snapps Close Wroughton Swindon SN4 0RN

Adventure *Fishy Business*
Problem Can I raise portcullis or open the black door I have the pearl
Name Adrian Webb
Address 22 Railton Road Norris Green Liverpool

Adventure 1) *Fishy Business* 2) *Pimania*
Problem 1) Getting started 2) Help sheet if possible please
Name John Haining
Address Arranview Somerset Street Cairine Ayrshire Scotland KA5 6RF

Adventure *Juxtaposition*
Problem How can I get the Blue Key Card to open the door to the ground level?
Name Scott Hadden
Address 336 Cluny Place Glenrothes, Fife KY7 4QY

GROSVENOR SOFTWARE

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HACKING SHEETS BY PAUL BURGIN. FREE

KEY Substitute the brackets for the words below.

(A) To load the program type "SKIPF:POKE126,4:POKE127,0:EXEC46941"

(B) To load the program RUN the following. "10 FORK=31500TO31510:READM:POKEK,M:NEXT:EXECK-11:DATA189,160,146,134,57,183,1,103,126,131,113"

(C) To load the program type the program listed below then add the line 20 as detailed in the text. Finally RUN the full program. "10 PCLEAR1:CLEAR10:FORI=1800 TO 1851:READM:POKEI,M:NEXT:EXEC1800 30 EXEC PEEK(1546)*256+PEEK(1547) 40 DATA134,126,183,1,142,48,140,28,191,1,143,141,31,141,34,134,3,151,0,142,64,0,141,9,10,0,38,247,190,64,12,159,0,126,183,91,158,0,141,7,141,2,53,144,142,6,0,159,126,126,185,51"

(D) Load the program as normal, then, when loaded, press the RESET button.

(E) Load the Program normally using CLOADM but before typing EXEC, enter the command......

(F) The built-in cheat system is as follows......

(G) This gives infinite lives!

(1) Player 1

(2) Player 2

(LIVES) Substitute this for the number of lives you would like.

(LIVES=n) The maximum lives allowed is "n".

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DRAGON 32K ONLY!

BORIS THE BOLD-(E) POKE 19411,(LIVES)

KATERPILLAR ATTACK-To load type "SKIPF:CLOADM" then POKE10739,(LIVES) or POKE10585,125 (G) To run type EXEC

CRAZY PAINTER-(A) POKE 9953,(POTS OF PAINT AND BRUSHES=64) or POKE 10014,125 (INFINITE BRUSHES) or POKE10806,125:POKE11798,125 (INFINITE POTS OF PAINT) Finally EXEC16384

CUTHBERT IN THE JUNGLE-(A) POKE11452,(LIVES) or POKE9916,13 (G) then EXEC 16384

CUTHBERT GOES DIGGING-(A) POKE 11675,(LIVES):EXEC 4096

HUNCHBACK-(D) POKE25384,(LIVES): EXEC 25280

THE TOUCHSTONE-(D) POKE22384,255: EXEC16384 This slows down the generation of new monsters.

GALACTIC AMBUSH-(D) on the score table. POKE 13331,(LIVES=not many) or POKE 14783,125 (G) Finally EXEC 12936

DEVIL ASSAULT-(B) POKE 14279,(LIVES) or POKE 14553,125 (G) To run EXEC 768

FIRE FORCE-(F) When selecting colour, press A then C, then enter codes "IMFTC","UGLY" or "TECHNIX" for different levels and/or "ENDLESS" (G). Also "POKE114,171:POKE115,205" before loading will access the autosave.

JUNIORS REVENGE-(C) 20 POKE 19529,("PLAY" game LIVES)

SPACE FIGHTER-(A) POKE16598,(MISSILES):EXEC 27392

ATHLETYX-(C) 20 POKE15058,39 This gives maximum speed with little effort.

INVADERS REVENGE-(E) POKE14719,(LIVES)

DONKEY KING-To load type "SKIPF:CLOADM" then POKE12914,(LIVES):EXEC

PLANET INVASION-(E) POKE7438,(LIVES=14) or POKE10906,125 (G)

SCARFMAN-To load type "CLOADM"",49152:POKE2062,0:EXEC" This gives 256 lives

LUNAR ROVER PATROL- (E) POKE22312,(LIVES)

KING TUT-POKE 7953,(LIVES) or POKE 10271,13:POKE 8257,13 (G)

BEAM RIDER-(D) POKE 7783,(LIVES) or POKE11840,13 (C) To run EXEC 7683

CAVERNS OF CHAOS-(F) Type "PIGLET" on the title page, depressing each key for a few seconds. If successful then use "E" to access the next screen.

MORRISON CHESS-(D) POKE 8401,224:EXEC 7700 This improves the colour.

PEDRO-Use "SKIPF SKIPF CLOADM" to load, then any of the following pokes, EXEC to run. POKE23603,&H(SEEDS=99) POKE 23620,&H(BRICKS=99) POKE20475,77 (INFINITE SEEDS) POKE20513,77 (INFINITE BRICKS) POKE 16047,125 (Stops tramps ability to steal seeds!)

TEA TIME-(C) 20 POKE 16443,(LIVES=15) or POKE 19996,109 (G)

JET BOOT COLIN-(C) 20 POKE 7230,(LIVES) or POKE8759,77:POKE9099,77 (G)

COSMIC ZAP-(D) POKE 7956,(LIVES)+1 or POKE 7981,13 (G) To run EXEC 13569

ESCAPE-Code is '79245" or (E) POKE 12401,33 allows anything.

CUTHBERT IN THE COOLER-POKE 8295,(LIVES=14)

SHOCK TROOPER-(C) 20 POKE 13895,(LIVES) or POKE 17075,125 (G) (F) during a game press "P,shift+@,R,shift+S" this gives a message and then you cannot be killed by bullets.

DONKEY MUNKEY-POKE 15120,(LIVES=127)

DRAGON HAWK-(A) POKE 11590,(LIVES=127):EXEC 4896

CUTHBERT GOES WALKABOUT-(B) POKE15389,33 makes you immune to monsters and POKE13406,125 (G) Run with EXEC 768

TIME BANDIT-See page 28 of Dragon User NOV 1986.

TOTAL ECLIPSE-See "Arcade Arena" in Dragon User AUG, SEPT & NOV 1986.

FEARLESS FREDDY-(C) 20 POKE 28852,(LIVES)

DANGER RANGER-(B) POKE 10510,(LIVES):EXEC768

NOW 73 GAMES !!!

Write: ADVENTURE

*What is that strange creature which keeps popping up? It must be **Pete Gerrard**!*

IN this month's *Adventure Trail* a little bit of space was devoted to a crop of games from Simon Hargrave, and a quote used to describe them mentioned mobile creatures. So, how would you go about programming such a beastie into your own programs? Perhaps more importantly, what is such a beastie?!

Just about every adventure that I've ever seen has, by virtue of being an adventure game, you in your role as player as either the hero or the villain of the piece. You are the one who makes the decisions and controls the action, deciding what to do when and where, and how to go about doing it. But, even going back to the very first *Colossal Cave* adventure, there were always other characters or mobile creatures involved.

The annoying pirate would steal your treasure, and the even more annoying dwarf would leap out on you from time to time and indulge in a knife fight. The pirate would appear whenever certain conditions in the game were met, and you (the player) would have to be carrying at least one treasure before he would put in his appearance. The dwarf would leap out, always throwing a knife which missed on a first encounter, and thereafter indulge in some tiresome and, let's face it, boring combat; he was a nuisance who couldn't be avoided. One can see that there was nothing particularly sophisticated about those two, and later adventures saw something of an advance on these early ideas.

Moving on a year or two, Infocom's *Starcross* had a whole host of characters in it, from native chieftains that you had to barter with to get a brown rod, to enormous spiders with a fascination for tape recorders, and meeting along the way the infuriating mechanical maintenance mouse, always clearing up any debris he might find lying around. He had a capacity for going through a hole in the wall that immediately closed up behind him, thus barring your progress. A tricking problem, until solved with the aid of a couple of thin disks. The number of times that I tried to disguise myself as a piece of rubbish and lie down on the floor, thus provoking the mouse into picking me up (or so I thought) was legion, and needless to say it never worked at all. The thin disks hold the key.

Any other games like *Lord of the Rings* and *The Hobbit* featured characters of varying degrees of intelligence, including the now legendary Thorin and his total inability to do anything other than sit down and sing about gold, or so it seemed. Certain characters were obviously essential to the completion of the game, like Elrond and his ability to read a map (*and serve lunch — Ed*), Gandalf's propensity for showing up in the most unlikely (but welcome) circumstances, Belin failing to make it onto Bullseye and guesting in a computer game, and a variety of inhuman opponents such as wargs and trolls.

How do we go about controlling them?

Back in Time

If you remember your *Colossal Cave* you'll no doubt recall the bear, a ferocious beast easily tamed with a morsel of food and, once freed from his golden chain, blessed with the ability to attach himself to you like a limpet and follow you around for days. Follow you onto the bridge too, if you're not careful, sending you both plummeting downwards into a bottomless abyss while reaching for the orange smoke. Now something like that is relatively easy to program. Once the bear has been fed and the chain removed we could set a variable flag, BF for example, and then everytime we came round to the WHAT NOW prompt just check to see whether or not BF was set. If it was, then print up the message 'You are being followed by a large tame bear', but if it wasn't then don't print anything and just carry on as normal.

Character could be given to the bear quite easily. If, for instance, you dropped two things at the same time and the flag BF was set, you could print 'As you drop the (whatever) the bear runs away thinking you're throwing something at it. However it soon calms down and returns to your side.' When you approach the bridge and the troll asks for his treasure (the original troll booth perhaps?), and provided once more that the bear flag is set, you would print up 'The troll screams at the sight of the bear and runs away shrieking. The bear starts to follow but soon comes back to your side again.' That way you solve the problem of the troll but still leave the player with the possibility of walking onto a rickety old bridge with an enormous animal by his side. The weight is more than the bridge can bear, of course.

Of Dwarves and Pirates

The dwarf and the pirate are similarly easy to program. Provided that the player's current position falls within a given range (can't have the dwarf leaping out from behind a rock in the well house) you could use the random function of your computer. Like this, for example:

```
IF (CP>10 AND CP<50) AND RND(100)>95 THEN DF=1
```

Here we set the dwarf flag, and program control could leap off somewhere and engage you in a duel with the dwarf. Checking for the pirate would follow the same sort of lines:

```
IF (CP>30 AND CP<40) AND RND(100)>98 THEN PF=1
```

and again you'd set the appropriate flag. Then, by whisking program control away somewhere, you could check to see whether the player was carrying any treasures or not, and provided that he has, removed them from him and let the bearded pirate carry them away to his treasure chest deep in the maze with a yo ho ho and a bottle of rum thrown in for good measure. If he wasn't carrying any booty worth stealing, then carry on as if nothing had happened.

But that is all (dare I say it) fairly straightforward stuff, and in the increasingly sophisticated adventures that we are now seeing the player is beginning to get used to ever more complicated scenes.

Other Characters

I once wrote a spoof version of *Colossal Cave* called *Enormous Cave*. Looking back at that program I'm forced to say that I am terribly embarrassed by the parser that I used (so primitive by standards nowadays), but one thing that I'm most definitely not embarrassed by was the use of a character called Eddie. In the game you played the traditional role of exploring caves and finding treasures, although everything had been moved about and solutions to problems were not quite what they used to be, and during these explorations you bumped into Eddie. He was an underground dweller, a Neil of Young Ones fame really, who probably hindered more than helped, but was essential for the complete solving of the game. You could talk to him, ask him to do things, sometimes he followed you and sometimes not, depending on your behaviour, and overall he behaved like a hippy companion of the caves would be expected to behave. He was, in other words, an integral part of the adventure, the sort of person you'd move away from if you met them in the pub, but deep underground when there's no one else around you have no choice in the matter.

This sort of character is reasonably easy to introduce into a game, but presumably you won't always want a demented hippy walking around and blundering through your adventure. Other, perhaps multiple, characters are just as useful, and could also be added without any undue problems Exactly what sort of character you use is obviously up to you and your adventure but they do add to the game as a whole It s hard enough in real life to walk through a town without meeting people leaping off buses and saying hello to you so to wade for months through an unknown land facing unknown hazards in a maze of tunnels and corridors without bumping into anyone is pretty much well nigh impossible Bit like shopping in Wigan really

Unfortunately for us the problems increase with the more characters that you have A western adventure that I once did solved this problem by only making a couple of them into really intelligent chaps giving you the ability to talk to them and ask them to do things whereas the others just appeared and either shot at you attempted to rob you and whenever you asked them a question they pleaded deafness and walked away

This isn t too hard to control if you use a 'say verb as in say to Wyatt Earp shoot the sherrif' Then you could analyse the first part of the sentence so that we know that the player wants to talk to Wyatt Earp and if Earp is one of those characters who can sometimes be persuaded to do something we can use the parser again to work through the rest of the input contained within quotes and see whether or not Earp is going to obey your instructions He might or he might not depending on how you ve programmed him whether or not he s got any bullets left or any one of a collection of different parameters which will obviously vary from game to game

If the character was one of those who would never do anything you could just use a stock response like He looks at you as if you were mad and walks away or something like that making sure that you then put said character into another location so that if the player tried to talk to him again you could say Talking to yourself is a sure sign of madness or whatever else you feel like telling the player when he s attempting to talk to someone who isn t there

After this we just control all the rest of the characters in the game as if they were so many walls doors or othr inanimate objects They do precisely what we tell them (like throwing axes or stealing treasures) and no more This still gives them the illusion of reality without the player really knowing whether they are real or not Obviously a dwarf throwing an axe or knife at you presents a real enough danger but if he never does anything else then he can be more or less discounted from the rest of the game

One simple trick that can be used in your games works as follows I always try and have some kind of status line on display telling the player where he is what his score is how many moves he s had and how much times is left if it s a time-related adventure To tell him where he is you obviously can t print the entire room description out as part of one line so an enormous piece of prose about the inside of a stable might be reduced to just inside the stable door Then you can use this to print up either You are just inside the stable door or Wyatt Earp s just inside the stable door using the same piece of description for the different characters

Dragon Adventures

We can then find out where everyone is in the game (perhaps an extended look command) by using all these short room descriptions Saves on memory and adds to the game so it can t be all bad

Conclusion

next month in response to a few requests we ll take a look at building up a verb or two so that you can see how that is done Other characters might come into it as well so we ll try and cram as many awkward things in as possible thus making it (in the long run) easier for you to enter your own verbs I hope!

Anyway that ll have to do for this month Bye for now

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MIKE GERRARD'S ADVENTURE TRAIL

EVERY so often a little letter comes along that deserves printing in full and anything that can cheer me up on a Monday morning while at the same time capturing the spirit of the true adventurer who will succeed no matter what is most definitely one of those letters From Edward O Leary who resides in Exeter we have (after the usual greetings)

Yet another cry for help only eight years to retirement and it looks as though I'll spend them all trying to solve *Caverns of Doom Vortex Factor Syzygy* Hint sheets would be much appreciated (SAE hopefully enclosed)

I have completed several adventures although my time at the keyboard is limited by a demanding family

Love the articles on adventure writing you have inspired a dream My adventure it will depict a middle aged adventurer desperately running away pursued by his loving and ever increasing family/relatives His mission to find the silent room wherein lies that which all computer adventurers seek TIME

It's early morning the sun is AARGH the noise the family is astir

Yours frantically

There is a PS which for Edward's sake I think I'd better print before his ever increasing family/relatives take umbrage He does say PS Love them all really! I'll believe you thousands wouldn't I think any member of a family who has ever played adventures can easily sympathise with Edward

But onto more specific Dragon stuff with the offers of help in exchange for help First of all we hear from a chap by the name of Gareth Loxton or it could be Roxton since he is obviously destined at some point in his life to be a doctor and has started his training by learning how to write indecipherably Actually most of his letter's all right it's just the name that led me astray but fortunately for us all (since he's offering solutions to a variety of games) his address is perfectly legible and he lives at the rather apt 1 Rambler Close Walwayne Court Trowbridge Wiltshire BA14 9SL

Send the usual SAE for help on any of the following games *Mystery of the Java Star Pettigrew's Diary The Ring of Darkness Shenanigans Dragon's Mountain Calixto Island Keys of the Wizard Don't Panic Mansion Adventure* and *Jerusalem Adventure* A few old friends in that lot I think

Actually Gareth is very self-deprecating for in his letter he tells me that he recently bought 15 adventures for the Dragon and after playing them for weeks he's only managed to solve ten of them Good grief! 66 per cent success rate and the man's worried I would refer to it as a major triumph or Honda to keep someone happy

Having solved ten we come to the five that he's stuck on and once again a few old favourites are cropping up as per usual

Backwards writing time again which means that those nations that read from right to left will think that there's only a few words of common sense in the whole column and the rest of it is an enormous clue for the world's biggest adventure What do you mean you think there's only a few words of common sense in it? Cheeky young pups Anyway onto *Vortex Factor* where Gareth is stuck at opening the safe Well or should that be efas presumably you haven't found the document with the combination on it so (24/92/11 noitanib moc) tnemucod teg reward nepo eciffo og to find out the secret On the other hand if you have got the document and are being a bit on the esulbo side then noitanibmoc eht retne dna tnemucod eht ta kool eciffo eht ot og and to do that you'll need to type laid nrut and enter the appropriate numbers from the document Once open you'll find a blue cartridge by efas kool and after that you're on your own

All touch typists should be made to take a course in backwards typing it reduces my typing speed to absolutely nil

Anyway or yawyna he also wants to know how to build the altar in *Black Sanctum* or altar as I believe Gareth has referred to it Alter the altar perhaps Here we go. You will need to find the rood del an after you've found the remmah which is tpyrc eht ni and then using that you can sdraob teg slianteg slianllup With the aid of the wax which is tfol eht ni you can then ratla eht ekam and ratla pord in the crypt to continue on in the game Phew!

Onto *Syzygy* and a solution which will make you kick yourself Gareth wants to know how to enter the airless corridor with a suit full of holes Well if you htaerb dloh and then rodirroc retne you'll be all right

Problems with *Tanglewood* next which people seem either to solve relatively easily or are completely and hopelessly lost Alas for Gareth he is one of the latter type and wants to know how to get out of Dwarf Dive Well since another problem of his is getting into Schark Castle I think we have a severe case of going about things the wrong way here I refuse to type all this in backwards so if you don't want to know anything about Dwarf Dive then put a card over the next paragraph and read on after that

Send Bruce into Dwarf Dive and press the button to reset the lifts Bring him out through the northern exit/entrance and down on the lifts to get the whiskers Bring him out via either the southern or northern exit and transfer the whiskers to Goliath and get him to wear them Finally to complete Dwarf Dive send Goliath in down on the lifts and ladders and then get archangel from the lowest mushroom and give archangel to Beanbag This is hard to complete without getting caught so use the Hold and Quit commands quite often

So there

How to get into Schark Castle? Similar sort of problem you don't get in at all but get someone else to do it Again I'm not typing all this out backwards so if you don't want to know cover up the next paragraph

Send Foghorn into Schark Castle carrying the batteries (after eating and dropping the catmint) through the southern entrance Get the Jammer and install the batteries and use the Jammer in the cellar after moving the coal to fuse the eye Next send Foghorn up to the fourth level (strange light) and get the key Exit the castle through the western door and unlock the boathouse and get the net Then send Foghorn into the castle and out through the eastern door and home

And that sorts out the castle courtesy of someone whom we will be coming to later and whom it is probably impossible to write a column about Dragons without mentioning You know your name

But first a cheery little letter on shockingly bright yellow paper why has a wasp just entered my room PANIC!!

Sorry cheery little letter from S Robinson in Danby Dale West Yorkshire Wrong side of the Pennines but still For once not a whinge whine or moan in sight just information for yours truly And I quote

I have recently completed *Trekboer* and have a few tips To kill the spider put it in the room with the red button But you must drug him with the capsule first To get past the forcefield you must get the amulet and WALK FIELD If you want any more tips don't hesitate to ask I have also finished *Mansion* and *Franklin's Tomb* Yours sincerely

This is the stuff this is what they want Compost Corner! Short and sweet no mucking about no requests for eight thousand help sheets vocabulary lists, maps and complete solutions for every Dragon adventure ever written just concise and to the point Aw!

Besides anyone who can spell capsule as capsual deserves a mention

Okay okay nearing the end and Simon Hargreve appears yet again This is because bless his word processor I've just received a rather long letter from him. The sort of thing that if Moses had been given the choice between posting this and carting two enormous tablets of stone with the Ten Commandments engraved on them down a mountain we'd still have the Ten Commandments and I would not have seen this letter What is the boy doing then?

I was going to say that he was being extremely prolific but according to my dictionary the origin of the word lies with our Latin friends and means literally to make offspring Since the example quoted is "my pet hamsters were so prolific that they soon needed a larger cage (my hovercraft is full of eels I know) I think I'll just say that he's been writing a lot of Dragon adventures so if any of you lot out there are feeling adventure starved here's a quick resume

Starcrash I've already mentioned in a previous column and following on from that we have part two of the saga called *The King's Quest* Here we reset on earth in the twelfth century wandering around a castle at the mercy of a Mad King Charming

The Meaning of Life (hello hello) sees you in control of four characters who can work in various states either normal asleep waiting and dead Mobile creatures and real time adventures eh?

The latest one Simon refers to as a monster adventure with around 200 locations and a full English parser if he can fit it into the memory Hmmm He describes it as being a bit like a science fiction *Madness and the Minotaur* so if it can live up to that it should really be rather good More details on this and the rest as and when Simon sends them on to me but if you feel like diving in blind and buying one it'll set you back £5.00 available from the lad himself Simon Hargrave at Crawley Hill Farm Uley Dursley Gloucestershire GL11 5BH This includes the usual post and packing by the way

As well as writing all this lot he has an extremely comprehensive list of solutions to adventures (apart from Scott Adams ones which he says he can't stand!) so by sending him 20p and an SAE he'll send you back the required solution Presumably he also has a list of all the solutions on offer but since he neglected to mention this all important fact you'd better write and ask for one

For some reason he's given me a few tips or some [illegible] adventures [illegible] have not seen them yet and you [illegible] have [illegible] to the end of the [illegible] and a message that [illegible]

Two issues ago I mentioned a magazine called *Adventure Contact* published up here in Wigan by Pat Winstanley Last issue I brought the sad news of its demise Now it has re-appeared again with a different editor at the helm Name and address if you want to send off for a sample copy (£1.00 I believe) of this interesting though not Dragon specific look at the world of adventures is Colin Page Kingfisher Restaurant 91 Palmerston Road Boscombe Bournemouth BH1 4HP Yes Kingfisher Restaurant which makes me think of something that's a cross between the Restaurant at the end of the Universe and Fawlty Towers but we shall see

Okay chaps and chappesses that's all for now Bye

Adventure Contact

To help puzzled adventurers further we are instituting an Adventure Helpline — simply fill in the coupon below stating the name of the adventure your problem and your name and address and send it to Dragon User Adventure Helpline 12/13 Little Newport Street London WC2H 7PP As soon as enough entries have arrived we will start printing them in the magazine

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All around the square

When is a triangle a tetrahedron? **Gordon Lee** *figures it out*

HOW many squares are there on a standard chessboard? I don't mean just the 64 small squares but squares of a larger size as well. For example there are larger squares which are made up of four of the smaller squares, and so on. And don't forget the single large square which encloses the complete board and which measures eight units along its edge.

If you manage to work that out, what about including rectangles as well as squares — and what about grids of a larger order than the 8 x 8 of the chessboard? Fortunately there are mathematical formulae which can save us the bother of actually counting them by inspection. The total number of rectangles (including squares) is given by

$$\frac{(n^2 + n)^2}{4}$$

of which

$$\frac{2n^3 + 3n^2 + n}{6}$$

are squares and

$$\frac{3n^4 + 2n^3 - 3n^2 - 2n}{12}$$

are rectangles (*not* including squares). In these expressions the value n is the order of the grid in question — so this would be equal to 8 in the case of a chessboard.

From these formulae we can readily determine that in the problem quoted there are a total of 1296 rectangles, of which 204 are squares and 1092 are not. Clearly for any value of n the total given by the first expression must be equal to the sum of the other two totals.

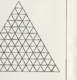
		n=8
△	$n(n+1)/2$	36
□	n^2	64
⧉	n^3	512
◭	$n(n+1)(n+2)/6$	120
◮	$n(n+1)(2n+1)/6$	204

A similar problem relates to a triangular lattice. This is taken from a puzzle book of the last century and asks for the total number of triangles which can be found. This is a more difficult problem than the one of the squares, not least because there are also triangles which point downwards as well. Once again there is a mathematical expression which comes to our rescue!

$$\frac{n(n + 2)(2n + 1)}{8}$$

In this formula, if the value of n is odd, the division by eight does not come out exactly, so in this case ignore the remainder. So in the diagram, which is of order 11, there are 411 triangles to be found.

Formulae can also be of great help when dealing with the figurate numbers, reference to which is frequently made of these pages. The five principal figurates are triangular, square, cubic, tetrahedral and pyramidal numbers, and by using the formulae given the nth term of any of the series can be easily found. The table gives the formulae for these figurates and, as an example, the value when n=8.



Problems are often found in which it is necessary to find values which belong simultaneously to two of the categories of figurate numbers. For example what is the smallest number (not including 1) that can be both triangular and square? The answer is 36, this being the eighth triangular number and the sixth square number. There are an infinite number of triangular/square numbers but 36 is the smallest, and this forms the basis of the competition this month. Complete the grid so as to indicate the first *three* terms which match up in each of the pairs of categories as shown. We have started you off with the 36 in space (a). Note that we are **not** including 1 in any of the sections. Also in section (e) we only require *two* values (there are only two!) and in section (f) only one as there is only one value that is both square and pyramidal.

Triangular	(a) 36	X	(b)	(c)
	Square	(d)	(e)	(f)
		Cubic	X	X
			Tetrahedral	?
				Pyramidal

Don't bother trying to fill in the other boxes. Those marked with an X have been proved to be impossible. As for the box marked ?, although the existance of such a number has not been disproved, if one exists it will be so enormously large that it will fall outside the requirements of even these competitions!

Prize

Chuckie Egg [illegible] [illegible] have been [illegible] [illegible] and [illegible] so much (see the [illegible] [illegible] in [illegible] corner) [illegible] almost legendary status.

In keeping with Dragon User's [illegible] [illegible] legend in its own [illegible], we [illegible] Compulape [illegible] [illegible] (of course) into putting [illegible] [illegible] games for the [illegible] of this month's comp. So take your [illegible] — you never know, you might get it!

Rules

First complete your grid. Secondly print it out, along with any program notes you [illegible] to include. Third, enclose said grid and printout in an envelope, along with your name and address, mark the whole caboodle OCTOBER COMPETITION and send it to us here.

But not before completing the tiebreaker! To do that thing, peruse the sentence "I go to work on an egg because ..." and send it along. We may put you to work on an egg.

July winners

Now everyone knows that these competitions are judged entirely on the correctness of the solutions, the elegance of the programming and the [illegible] of the [illegible] [illegible] [illegible] — [illegible] [illegible] [illegible] MUSIC MAKER [illegible] [illegible] English language [illegible] [illegible] [illegible].

[illegible] by the [illegible] (Dave [illegible])

We're All Going on a Summer Holiday by Buster [illegible] (Rachel [illegible]), all written out in music.

It's So Easy by The [illegible] and *How Do You Do It* by The [illegible] [illegible] our other contributors as well (Fred Taylor)

Supercalifragalisto[illegible] by S N Error (John Smallwood)

503rd Symphony by N[illegible] (Richard Long)

and a very special mention for *Sweet Sixteen* by ex Emma d Eesmat (Fred Willers)

The ten best overall entries will be getting copies of John Penn Software's *Music Maker* and the next ten will get £3.00 discount vouchers from the Penns. Stay tuned!

Solution

This month's solution is, we believe, on the opposite page.

The Answer

This is Gordon Lee's own solution to the June competition see page 24 for results

ANSWER There are two possible substitutions for MUSIC MAKER

13924 and 15876

or

23716 and 29584

Solution As there are nine *different* letters in the words MUSIC and MAKER each of the nine digits (1 to 9) must be used on a one-to one substitution First of all we need to find all perfect squares which consist of five different digits then we need to select possible pairs from this list

These possible values are computed in the loop N Each value in the range 112 to 314 is squared in turn and the resulting value is placed in the string variable S$ (line 140) Because of the leading space placed in this string when the computer creates a string variable from a numeric variable this extra character is removed using the MID$ command The remaining five digits are then tested first to see if a zero is present (lines 160 to 180) and then to check that all five digits are different (lines 200 to 220) A flag (FL) is set initially to zero for each test and is raised to 1 if either a zero or a duplicate digit is found Values which pass both tests are then stored in the array A$()

This array is originally dimensioned to a size of 50 units although in fact only 42 numbers are eventually stored Once this array is filled the program cross-checks the values that it contains for suitable pairs To satisfy the terms of the question each pair of numbers should start with the same number (as both words commence with the letter M) while all other digits should be different The program takes each unit of the array in turn and compares with it all those values which are to be found further down the list (lines 280 to 290)

First line 300 checks that both numbers commence with the same digit Then all possible values are combined into variable Y$ This variable contains the whole of the first number and the last four characters of the second number The final test (lines 330 to 350) checks to see that each of the nine digits contained in the string are different from each other Those pairs that pass this test are then printed out

This results in the two pairs of values given

```
  5 CLEAR 500
100 DIM A$(50)
110 T=1
120 FOR N=112 TO 314
130 S=N*N
140 S$=STR$(S):S$=MID$(S$,2)
150 FL=0
160 FOR F=1 TO 5
170 IF MID$(S$,F,1)="0" THEN FL=1
180 NEXT F
190 IF FL=1 THEN 240
200 FOR F=1 TO 4:FOR G=F+1 TO 5
210 IF MID$(S$,F,1)=MID$(S$,G,1)THEN FL=1
220 NEXT G:NEXT F
230 IF FL=0 THEN PRINT N;" ";S$:A$(T)=S$:T=T+1
240 NEXT N
250 T=T-1
260 PRINT:PRINT"REPORT-No of Variables:";T
270 PRINT:PRINT"CROSS-CHECKING:"
280 FOR P=1 TO T-1:FOR Q=P+1 TO T
290 Y$=A$(P):Z$=A$(Q)
300 IF LEFT$(Y$,1)<>LEFT$(Z$,1)THEN 370
310 Y$=Y$+MID$(Z$,2)
320 FL=0
330 FOR F=1 TO 8:FOR G=F+1 TO 9
340 IF MID$(Y$,F,1)=MID$(Y$,G,1) THEN FL=1
350 NEXT G:NEXT F
360 IF FL=0 THEN PRINT A$(P);" ";A$(Q)
370 NEXT Q:NEXT P
```

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